The Need for Ecological Thinking in Design Education
by Peg Butler

The intent of this paper is to address, in a general manner, the need to educate environmental designers and planners to think ecologically. Ecological thinking grows from a deep understanding of humans as integral participants in the web of life. It is a way of looking at the world from a connected and indigenous viewpoint, being conscious of the interdependencies between ecosystems, humans and other natural systems.

On a broad scale, ecological thinking in environmental design and planning is important because of the “ecological crisis”. This is not one discrete event that may or may not have an effect on our lives, but is rather a crisis on the scale of the entire biosphere, which is actually the result of the destruction and collapse of countless ecosystems worldwide. The Union of Concerned Scientists illuminated the magnitude of the problem in a statement presented to the General Assembly of the United Nations in 1993, which was signed by 1600 scientists from 70 countries, including 100 recipients of the Nobel Prize.

“A great change in our stewardship of the Earth and life on it is required if vast human misery is to be avoided and our global home on this planet is not to be irrevocably mutilated. The Earth is finite. Its ability to absorb wastes and destructive effluent is finite. Its ability to provide food and energy is finite. And we are fast approaching many of the Earth’s limits” (Bowes 1995)

This point of this statement is underscored by the sixteen hundred signatures attached to it. The need for modern western society to take action toward living in more balanced ways in participation with other natural systems is of vital importance to the health and well-being of the biosphere. Disappearing forests, collapsing fisheries, eroding topsoil, rising temperatures and CO2 levels, loss of wetlands, and broad scale animal and plant extinction all point out the necessity to rethink the structure and design of modern society.

This western model of the modern world developed out of “the seventeenth-century-Galilean-Cartesian-Bacon-Newtonian Science.” (Orr 1992)
**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 for local solar and alternative energy resources, and their applications in architecture and technology.

One of its vital functions is to sponsor 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, product-files and a World Wide Web site.

**ERC Mission Statement**

The Environmental Resource Center is a student based network of environmental groups at the University of Oregon. Our mission is to promote a greater awareness of actions and beliefs that are beneficial to the health of the ecosystem.

**Goals**

The Environmental Resource Center’s goals are to facilitate: the dissemination of information, the collaboration between individuals and groups, and an active dialogue between local stakeholders about environmental and social issues. The Environmental Resource Center provides for various educational opportunities and physical demonstrations of ecologically sustainable design. Through these activities, the Environmental Resource Center intends to provide for present needs as well as those of future generations.

**Design Charette at the HOPES Conference - April 16 and 17**

A charette is an intensive design investigation into possible schemes for a project.

The Solar Information Center is coordinating with HOPES on a design charette during the 1998 Eco-Design Arts Conference. The charette will be facilitated by designer, artist and professional collaborator, James Wines of SITE.

It will focus on the Environmental Resource Center (ERC), an actual proposal for the University of Oregon campus (slated for the post-2001 Biennia - University Planning Office).

The ERC is planned as a showcase of ecological design and sustainable building materials. The building will house a common resource space as well as many UO environmental out-group organizations. Exterior spaces are a large part of the project, including a demonstration Permaculture garden and outdoor meeting area.

The University administration, faculty, staff, and students will operate the ERC in a collaborative manner.

**Environmental Resource Center Project**

This project is imagined as a network center for environmental issues in the Northwest, providing technical assistance and a resource library for the local community, state and beyond. Through cross-disciplinary collaboration in research, innovation, and public service the ERC is expected to expand UO’s current interest in ecology and environmental issues. In its design and operation the ERC will be a model for how a sustainable university or other community could be organized.

After the introduction, charette teams will be formed at the first meeting on Thursday. This will be followed by a series of critique and development sessions with James Wines and others. The teams will begin to develop the vision of the ERC. A design background is not required, all are encouraged to participate.

**A National Movement**

The Environmental Resource Center project is part of a growing trend in the United States. Environmental centers are springing up on universities and college campuses as increased attention is paid to the “environmental crisis.” Many of these centers house environmental studies departments, while others house less formal student groups.

At Humboldt State, in Arcata California the Campus Center for Appropriate Technology occupies a modest remodeled house. This student group has built in such features as a passive solar greenhouse, photovoltaics on the roof, and a peddled powered washer.

707-826-3551 email: ccat@axe.humboldt.edu (web site: http://www.humboldt.edu)

The Environmental Technology Center at Samona State University, in Cotati California, is yet another example of a small multipurpose demonstration center (2300 square feet). Final construction documents are still being finalized, but this center will prove to be an asset to up coming environmental centers. 707-664-2249, email: Rocky.Rohwedder@sonoma.edu (web site: www.sonoma.edu/onew)
This worldview (or Ecological Paradigm) links human beings to the planet and to each other in more ecologically sustainable ways, rethinking the dualistic, anthropocentric, and individualistic habits and ways of thinking with which modern society has become comfortable.

All disciplines and fields need to learn to work together toward viable, sustainable models for living on earth. Because of the environmental design and planning fields’ influence on the structure and symbolism of society, environmental designers and planners have a particular responsibility to understand, interpret and educate others about living on earth in sustainable ways. It is this responsibility that leads to the importance of educating environmental design and planning students to think ecologically and in turn, for students to act accordingly.

References:

Community Based Design Education

by Jason Wilkinson

Many of the problems with design education today stem from the isolation of this elite system. The majority of the public does not understand the design process nor are they encouraged to interact with the built environment. The “modern” designer is often thought of as autonomous and disconnected from her or his community. This professional practice usually results in designs that do not adequately serve the needs of the users and are visually alienating. Improving this system demands that design education shift to a community basis. Through instituting respect for community knowledge, user involvement, and universal access, “Universal Design” education can begin the transition to social sustainability.

Respect for Community Knowledge

Discourse between various community members must be encouraged, rather than separating the community into levels and groups. Collaboration between people of different ages, ability, economic standing, and races would allow the sharing of community knowledge. An example of this is the mentor program “Break the Cycle” in the Bay Area, which brings college level students together with disadvantaged youth. The children are presented a convincing alternative, while the older students are challenged to face tough community problems. This is an example of the exchange of knowledge that in turn strengthens the community bonds between disparate individuals.

User Involvement

A collaborative design process brings students and professionals out into the community and encourages community members to question their built environment. Great user involvement tends to increase the sense of community pride in the design. Lucien Kroll has taken advantage of user involvement in many of his projects,

“We constructed a model large and robust enough to be manipulated by a dozen children at a time... Each class took up and improved on the work of the previous class, stacking the partitions into the cork floor, and coming to grips with the rules of the modular grid much more readily than our engineers... With people who are committed and inter- ested, participation is straightforward and enjoyable.” Kroll 1996.
**A Hillside Development**

by Dave Toder - This development is composed of two different house types. One is an earth sheltered home that utilizes passive cooling and heating strategies while still collecting rainwater through a sod roof. The other is a duples that uses passive and active solar technologies to help save energy.

**The Solar and Sustainable Design Showcase**

quarterly event that encourages and recognizes the pursuit of sustainability in the University of Oregon School of Architecture. These projects will also be posted on the World Wide Web. The will be on display in the HOPES Conference. We encourage submissions at the end of the next showcase.

**Karlsen House**

by Chris Chalmers

1- SKYLIGHTS
2- SOLAR HOT WATER AND PHOTOVOLTAIC PANELS
3- LIGHT SHELVES
4- REED BED
5- TROMBE WALL
6- DIRECT GAIN THERMAL MASS
7- SEASONAL SHADING DEVICES
8- "CLIVUS MULTRUM" COPOSTING TOILET

**The Washington Maritime Museum**

by Ross Leventhal will help to revitalize an extinct industrial area, the Thea Foss Waterway in Tacoma, Washington. By separating the program into a group of connected buildings, climate control by function, daylighting, and useful outdoor spaces were maximized. All south facing roofs are covered with photovoltaic integrated standing seam metal roofs. The boat restoration building has a large expanse of south glass, but is usually open to the outside, except on the coldest of days. The galleries and entry building are designed to utilize earth tubes and stack ventilation to mitigate heat gains by lights and people. Light scoops and clerestories reach up for the natural light in an overcast climate that provides well for a general lighting level that is supplemented with electric spots to enhance and customize the rotating exhibits.

**The International Glass Museum**

by Therese Pefifer

The Glass Art Museum further reinforces the connection with the natural environment. Passive cooling techniques remove steady the steady heat from glass blowing. Earth tubes that run the length of the plaza cool the intake air. Stack ventilation which also removes hot air is aided by wind-assisted turbines. Ventilation of mass further cools the interior. Glass louvered fins gracefully shade the south side of the building and mechanical louvers adjust for maximum daylight. The roof collects and retains rainwater, which playfully cascades through the building before entering a cistern for flushing toilets and watering roof gardens. The south facing roof uses a solar electric (photovoltaic) system to generate a portion of the museum's electrical needs.
W ith the rapid growth of the “human built machine” it has become increasingly more difficult to understand this world, let alone find a place of comfort within it. This phenomenon is expressed throughout many realms of our society. Media advertisements have to be faster, better, more funny, or more touching than yesterday’s. In the home, family dinners are becoming a blurred collage of nutrient sapped recipes, microwave emissions, and rushed greetings. My father has been flipping through the television channels faster than ever. Can we continue to increase the pace of our lives like this and expect to survive, let alone be happy?

One of the major factors in decisions made in today’s society is fear. Being a university student, I have learned that the prospect of entering “The Real World” lurks in the nightmares of most students. The fear of beingraped of values and moral standards by a cut throat corporate job market pervades the thoughts of students and nonstudents alike. When it conflicts with our quality of life, the environment has taken the back seat in our perceptions of the world. Let us learn that the prospect of entering “The Real World” lurks in the nightmares of most students. The fear of beingraped of values and moral standards by a cut throat corporate job market pervades the thoughts of students and nonstudents alike. My father has been flipping through the television channels faster than ever. Can we continue to increase the pace of our lives like this and expect to survive, let alone be happy?

Educational practices that incorporate these values and goals will help students contribute to our society in a more positive and effective way.

It is important for us to become at peace with the natural world if we are to stop jeopardizing our existence. We must begin to understand our world and in this way overcome our fears of nature. I was reminded of this when a professor quoted an old Japanese saying, “You must study the pine tree by the pine tree.” The best way to learn about nature is by studying nature itself. Students and teachers should spend a substantial amount of time in close contact with nature. This would be valuable near the beginning of one’s education and throughout their lives. They could stay in a shelter with no electricity, running water, or any other mechanical distraction. In such a close contact with nature one could not help but to learn about and accept the scurrying animals, masses of clouds, rivers of water, piles of mountains, and vibrant sun rays that shape our surroundings.

It is also important for us to live a life-style that is less damaging to the environment. A class called “Basic Conservation Techniques” might focus on how our everyday activities affect the world around us. The class could also cover broad subjects like responsible consumerism and the politics of energy conservation. This class integrated with others, would teach the value of living a life-style that is consistent with one’s beliefs.

Today, too many fields of study do not allow for a multifaceted education. This results in tunnel vision which blinds us from seeing the negative effect of our actions on our environment and society. We need to understand our relationship with the social, economic, political, and spiritual world around us. In many schools, a balance is emphasized between an education that is too general and one which is too specific. This effort is commendable but has been largely ineffective. Intensive collaboration and communication between different fields of study is needed now, more than ever.

The conventional schools today create a separation of community for the students, faculty, and staff, but it can be hard to establish any sort of connection with other surrounding community. Stronger connections could be made between students and other community members by creating a setting where dialog, interaction, and understanding can take place. Whether in a classroom, at a homeless shelter, at a conference, or in a home, interactions between community members, professionals, students, faculty, and staff should be an important part of a well balanced education.

Group interaction and communication between individuals will be vital in repairing today’s society. This could start with classes and workshops that educate students about different methods used when working in groups. One good example of this is the idea of an interdisciplinary class or studio. This is a class that brings together people from different backgrounds who work together to solve a common goal. Collaboration can widen a student’s knowledge base and teach more about the connections that exist between different arms of our society. An interdisciplinary class does not have to consist only of students. It can be a combination of students, community members, professionals, and faculty. Through this kind of collaboration a multitude of skills can be developed.

A final stage of environmental education could be hands on experience. Some possibilities might be making a solar panel for a term project and giving it to a family that is in need of some financial support.

Environmental focused education should be present throughout all levels of education. Students should not have to wait until high school before they are exposed to the possibilities of community service. We should not have to wait until college to take classes in environmental preservation. I see many ecological values present in elementary schools today but they too often become side notes: “I will tell you about the implications of exponential population growth if we have time after the algebra lesson.” This reflects an interest in environmental issues but a priority for subjects already required by today’s schools.

Ultimately a more environmentally focused education will help us to shape our perception of the world. It will give us “the tools we need for self empowerment to make a change in a positive direction.”
Environmental Resource Center Charrette (Opening to the H.O.P.E.S. Conference)
April 16 5:00 PM. Lawrence Hall room 206, U of O
A charrette is an intensive design investigation into possible schemes for a project. A design background is not required, all are encouraged to participate.
(For more information see Page 2 of this newsletter or call us!)
Free for Students, $5 for community members.

1998 Renewable Energy Fair
April 17 10:00 AM to 5:00 PM, EMU Courtyard, U of O
The Renewable Energy Fair is a yearly event that is part of the University of Oregon’s Earth Week celebration and the HOPES Eco-Design Arts conference. Come see the educational displays concerning energy alternatives and community solutions for a more sustainable future.

1998 H.O.P.E.S. Eco Design Arts Conference
"IN COLLABORATION - The Art and Ecology of Place Making”
Friday April 17 to Sunday April 19, University of Oregon
The fourth annual Eco Design Arts Conference will explore collaborative process in ecological design, community development, and the arts through presentations, discussions, and workshops. The conference is student initiated and organized.
Check out our web page for complete schedule information. http://flaz.oregon.edu/~hope

Eugene CODE GREEN- Presentation to the public
April 30, 7:30 PM, City Council Chambers, City Hall, 777 Pearl St. Eugene
Members of the Solar Information Center and local activists will present more sustainable alternatives to current draft revision of the city land use codes. Make your voice heard! - the land use codes will greatly impact future development in Eugene for generations to come.

Can Buildings Make You Sick? - Video Brown Bag
Friday May 8th 12:00 Noon, Lawrence Hall room 206, U of O
This "Nova" special investigates the links between modern buildings and reoccurring illnesses. Lighting, ventilation, and building materials all effect our health. As we become more disconnected from natural cycles concerns over health safety in our buildings is rising.

Hope, Justice and Sustainable Architecture
May 14, 7:30 PM. Lawrence Hall room 177, U of O
Greg Acker is a Portland architect with 25 years of experience in designing passive solar buildings which also combine resource efficiency with low toxic construction. In an early experience with the Peace Corps in South America, he recognized an inherent concern for creating buildings that respect climate and local materials. Greg designed and built the 1992 HERE TODAY demonstration house in Portland, and his own home was featured in magazines and newspapers as healthy and environmentally-sensitive.

Diet for a New America - Your Health, Your Planet
May 22, 12:00 - 1:00 PM, Lawrence Hall room 206, U of O
A 30 minute video summarizing the book by Jon Robbins, hosts a journey into the great American food machine and reveals the tremendous environmental and human health consequences of a diet based on animal products. Discussion to follow with Jan Spencer a local EarthSave healthy food activist.

For more information, please contact us at 541-346-3696
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