University of Oregon

SOLAR INCIDENTS

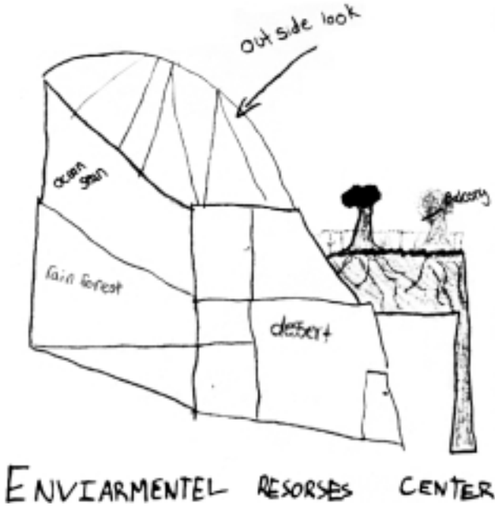
The Newsletter of the Solar Information Center

Vol. 9 No. 1 Fall 1998

Envisioning A Campus Model:

Developing an Environmental Resource Center at the University of Oregon

Holistic Options for Planet Earth Sustainability (HOPES) began with several students from the University of Oregon's School of Architecture and Allied Arts who were searching for something more from their education. These students organized a conference to bring together educators, students, professionals, activists and community members to discuss ecological design arts. Since then, the gathering has become an annual community event which rejuvanates our sense of purpose and connection in our common struggle towards a holistic lifestyle. As a part of this past year's Eco-Design Arts Conference in April, HOPES and the SIC collaborated in the organization of a design charrette. The charrette's goal was to develop ideas for the proposed Environmental Resource Center on the University of Oregon campus.



Design by school children from the Architects-In-The-Schools Program who took part in the ERC Charrette.

Charrette

Charrette is a French word for cart. In architecture firms of days past, the charrette would be pushed around the office collecting drawings to be taken to the principals. Occasionally, draftspersons would be known to jump into the charrette to finish work on incomplete drawings. Modern charrettes, while not held in carts, continue to involve intense design and drawing. Charrettes typically last a few days and have a set completion time.

ERC Charrette

The ERC charrette was seen as an opportunity to expand interest and develop new visions for the center. It was also a great way to investigate several assumptions about sites, program elements and appropriate building systems. There were 27 participants with varying backgrounds who took part in this year's Charrette including a group of children from the Architects-in-the-Schools Program who joined in a mini "kids charette." The final presentation given by the participants was attended by well over one hundred people who contributed their input and ideas.

The participants in the ERC Charrette worked in collaborative groups of three and four. Each group was given an information packet to guide them that included:

1. A site map and site issues
2. ERC information: mission statement, goals, objectives, and building program
3. Precedent studies of other environmental learning centers, and examples of alternative design and building systems.

With this information in hand, the groups were then given approximately 24 hours to envision a design for the Environmental Resource Center. Throughout this process facilitators from HOPES and the SIC visited with each group to answer questions and aid in the design process. James Wines of SITE (Sculpture in the Environment) was the guest facilitator who met with individual charrette teams to assist with group dynamics and in establishing a vision for the ERC. During the midday lunch break, James addressed the participants with an informal presentation on his own ideas about the ERC. His experience with team designing and issues of

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The Solar Information Center welcomes submissions for articles and our Solar and Sustainable Design Showcase.

What is the Solar Information Center?

It is a student run organization sponsored by the ASUO (Associated Students of the University of Oregon) and EWEB (Eugene Water and Electric Board). Its purpose is to serve as a research, education, and information center on solar and alternative energies, 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 promoting 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.


Lecture Series


In-House Library


Student Work


ERC Project


Web Site

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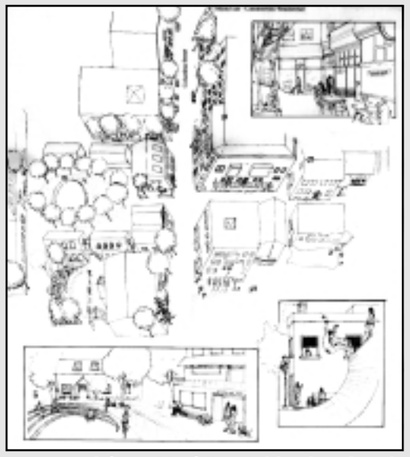
Congratulations to Jason Wilkinson of the Solar Information Center and his teammates, Prashant Gaba, Sophie Robitaille and Todd Matthes. Their design received and Award of Excellence from the International Conference on Universal Design. Their project, excerpts of which were featured in our Winter 1998 Solar Incidents, addresses universal design at multiple scales from the neighborhood block to the household living unit. They developed a series of design and program interventions to transform an existing neighborhood making it as inclusive as possible for all residents, regardless of ability, gender, income, race, culture, sexual orientation or life circumstance. The design applies a wide range of academic theory and literature to the creation of sustainable community, gathering places and lifespan housing.


proposal for a U of O neighborhood node

continued from page 1

sustainability was an invaluable resource for the participants and organizers.

The eight teams worked very quickly but were able to produce clear visions for the ERC. Some of the issues dealt with were of waste recycling, adaptive reuse of existing buildings, wholistic systems and a response to each site's specific context and qualities. The teams produced many wonderful images for the ERC, some of which are included in this newsletter on pages 4 and 5. For the organizers, participants and guests, the ERC Charrette was an invaluable experience.

More Information
A Packet with detailed information about the ERC will be available, for more information contact Jason Wilkinson at the SIC.

Current Activities: Studio Fall 1998
The Solar Information Center is coordinating a fall architecture studio course with two professors to develop further ideas about the ERC. Ronald Kellett and Robert Peña will be combining their architecture studios bringing together graduate and undergraduate students in collaboration on this project. Students will investigate and assess the needs of an Environmental Resource Center on the University of Oregon campus developing a vision and highly detailed design concepts for the ERC.

Throughout this process students will be coordinating with several student organizations, representatives from the U of O Planning Office, members of the Eugene community, as well as U of O faculty from various other departments. The intention of this studio is to explore the possibilities while keeping our sights on the practical side of realizing an ERC building.

History
Two and a half years ago, two students, Matthew Swett and Jason McLennan of the Solar Information Center, were struggling to find ways to increase the use of their renewable energy library. Unable to include their resources in the University's library catalog, these students soon realized that their under-utilized library resources were a symptom of a greater problem: the lack of communication between environmental campus groups. With this in mind, these students began the process of developing an environmental center at the University of Oregon.

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

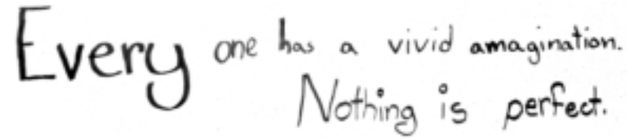
ERC Goals
The Environmental Resource Center's goals are to facilitate the dissemination of information, collaboration between individuals and groups, and dialogue between local stakeholders about environmental and social issues. The ERC provides for various educational opportunities and physical demonstrations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


ERC Project

Objectives
- In its construction and operation the ERC should be respectful of materials and energy use.
- The ERC should strive to make sustainable technologies available and affordable to all community members.
- The ERC will go beyond Federal and State requirements for universal access. It should be an example of universal accessibility for individuals and social groups that are discriminated against. This accessibility applies to such issues as race, class, gender, and the use of wheel chairs and other mobility devices.
- The ERC should be highly visible and encourage the coming together of people.
- The ERC should be a community networking hub that facilitates many levels of communication among groups and individuals.

Love Life
Sacred
Precious
Understand Connection
Part
Participant
Let Flow
Justice
Opportunity
Create Community
Web
Ecosystem
Sustain
Relationships
Health

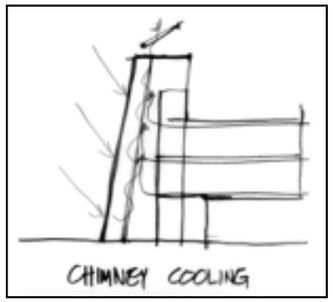
ERC Vision Statement



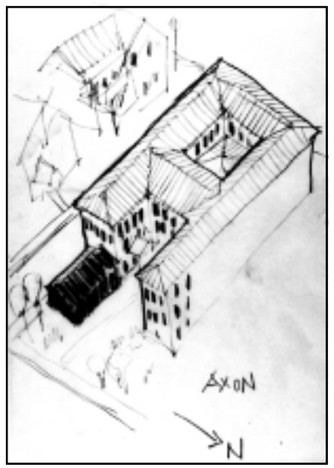
A quote from children participants in the ERC Charette

ERC Charrette Proposals

ERC Project



Group 1



Group 2

Group 3

Group 1

Thia Bankey - Architect
Don Titus - Architecture Student, UO
Patrick Clark - Architecture Student, UO

• Large entry atrium providing a connection between all levels as well as creating a cooling chimney that utilizes the principles of stack ventilation
• Program contained within one building creating the need for multiple floors
• Building oriented along East-West axis to gain maximum solar exposure
• Recycling systems integrated in building design

Group 2

Jim Bruvold - Engineer
Marcus Koch - Architecture Student, UO
Jessica Ellington - Architecture Student, UO

• Building uses existing campus typology while integrating alternative energy systems and construction materials
• Attached sun space houses displaying a "Living Machine"
• Courtyard helps to passively cool the building while providing a pleasant outdoor "room"

Group 3

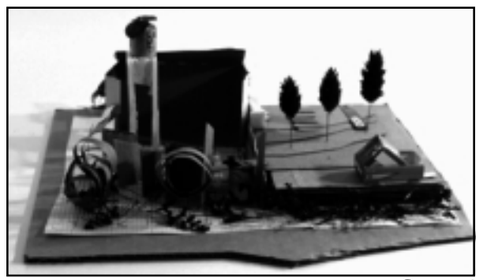
Greg Acker - Architect
Nick Bard - Landscape Architecture Student, UO
Varuni Tirucheluam - Environmental Studies, Oberlin College
MyPhoung Chung - Architecture Student, UO

• New addition allows for the adaptive reuse of an existing building
• Sun space along south side helps to heat and cool the existing building
• A building theme celebrating water and its many uses
• Terraces help create an indoor-outdoor connection
• Building uses thermosiphoning to solar preheat the hot water supply
• Existing church tower used to mount photovoltaic panels

Group 4

Rayna Huber - Architecture Student, Cornell University
Jessica Rubin - Architecture Student, UO
Todd Matthes - Architecture Student, UO
Nik Bertulis - Ecological Studies, Colorado College

• Design invites a dialog between rectilinear and curvilinear forms
• Attached sun space used to provide thermal comfort
• Rain water collection is a visible part of the architecture
• "Truth" Window provides a view into life below ground
• Addition of water tower to create landmark and store water



Group 4

Group 5

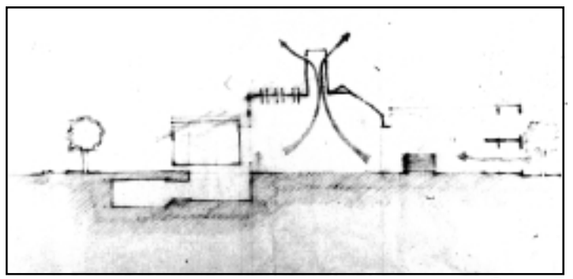
Bill Nachman - Architecture Student, UO
Sohail Abrahams - Architecture Student, UO
Penelope Crash - Architecture Student, Cornell University
Ben Gates - Architecture Student, UO

• Design uses sculptural flow forms to enhance the visitors understanding of the rain water collection system
• Building opens up to Millrace and bike path providing a resting and gathering place
• Mini-hydro is generated from the flow of the Millrace

Group 6

Jon Erikson - Architecture Student, UO
Nick Rajkovich - Architecture Student, Cornell
Karen M. Chan - Architecture Student, UO

• The building is integrated with the landscape through sod roofs
• Waste water is used for irrigation of demonstration garden
• Electric car recharging station provided
• Main building houses library, resources, classrooms, and student group offices
• The apartment design provides an example of sustainable living



Group 7

Group 7

Abhijit Kapade - Architecture Student, Cornell University
Tiller Decato - Architecture Student, UO
Chris Chalmers - Architecture Student, UO

• Design calls for underground spaces to reduce the buildings footprint
• Building uses stack ventilation for passive cooling
• Rain water is collected in bamboo stalks that are part of an external shading system
• A centralized courtyard provides a community gathering place

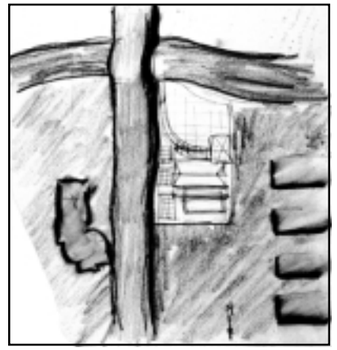
Group 8

Eric Hart - Urban Planner
Scott Pobiner - Architecture Student, Cornell University
Michelle Drollette - Architecture Student, Cornell University

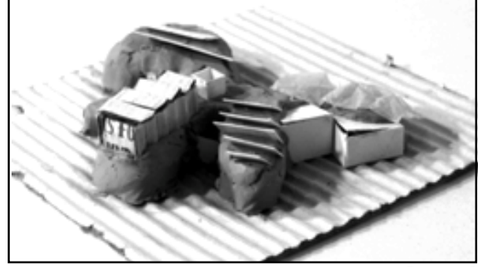
• This design uses an amoeba for the form of the building
• Roof gardens not only generate food but also provide a layer of thermal insulation for the building
• Building activities are centered around a central meeting space

Fall 1998

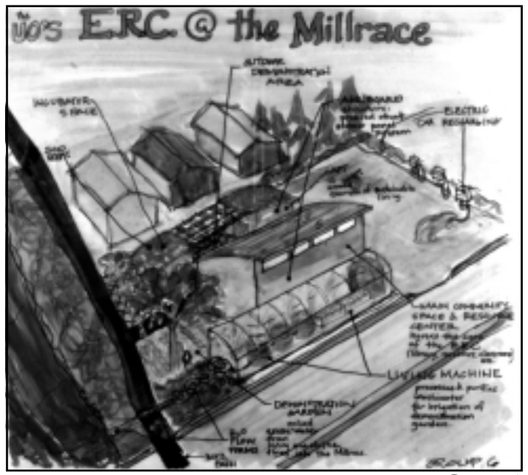
ERC Project



Group 5



Group 8



Group 6

Tall buildings simply by the nature of their girth consume a tremendous amount of resources. On a daily basis they can consume as much energy as a small town. Because of its scale, any resource conservation in the construction or operation of a tall building will result in over 100 times the savings as similar design considerations in a single family house.

To achieve energy efficiency the building :

• takes advantage of solar orientation (a slender footprint elongated East-West for maximum southern exposure)
• moves cores to the East and West facade to insulate against direct afternoon and morning sun which would overheat the building
• uses natural daylight to illuminate the building, minimizing heat gain and energy use from overhead lights
• incorporates sun-shading devices on the south facade to minimize solar heat gains.
• utilizes passive cooling mechanisms to reduce the cooling load on the traditional HVAC system
• uses photovoltaic panels, takin advantage of the building's exposure to the sun

Buildings should reawaken the user's fundamental connection to nature. What is the quality of the outside light? How long is the day? From what direction does the wind come? When the user is allowed to interact with nature a sense of responsibility for the environment is fostered.

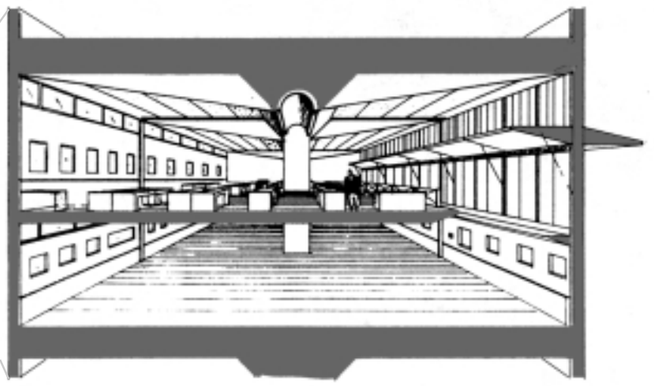
To connect its users with nature the building:

• maximizes natural daylighting allowing a view of a world larger than the immediate office floor
• employs operable windows, allowing users to fine tune their immediate climatic needs while maintaining a connection with the changing outdoor environment
• creates unique spaces in the building that allow one to discover the fundamental differences between North and South light
• provides places with different levels of enclosure and openness to enhance the user's awareness of an ever-changing environment
• creates an environment inhabitable not just by humans but also by flora and fauna (i.e. places for plants and birds)
• makes use of the abundant rainwater accumulated on site to supplement interior fountains

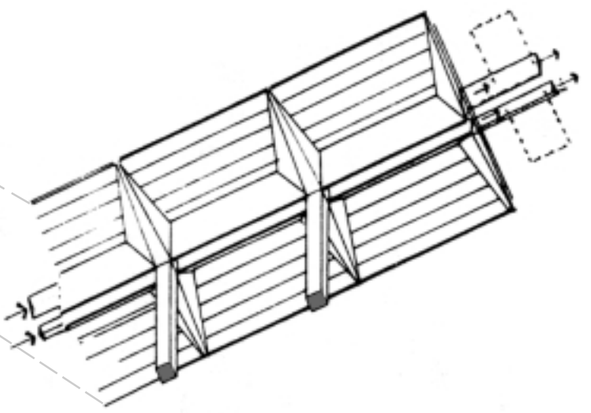
Designers should attempt to learn from nature. A redwood tree faces similar issues that the tower faces. How to support the outer reaches of the branches? How to keep from overturning? How to maximize light both at the branches and at the forest floor? All of these issues have direct parallels in the tower.

To respond to nature's precedent the building:

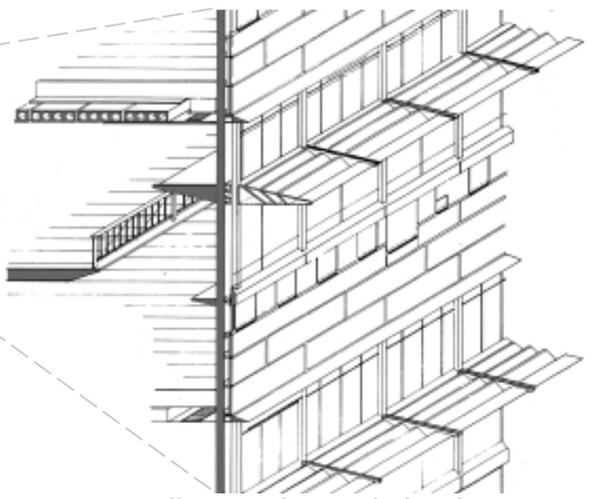
• uses cantilevered floor slabs
• creates places of inhabitation within that recognizes to tower's ability to create more complex and successful vertical environments
• makes use of patterns and systems (i.e. sun shading) at different scales as nature does in fractal geometry exploring the possibilities that form might give to the continuity of the scheme.
• gives special attention to the ground condition and recognizes its different needs (scale, openings, program) from those of the tower
• recognizes the tower as part of dense grouping of towers that must work together to create a more inhabitable city ecology



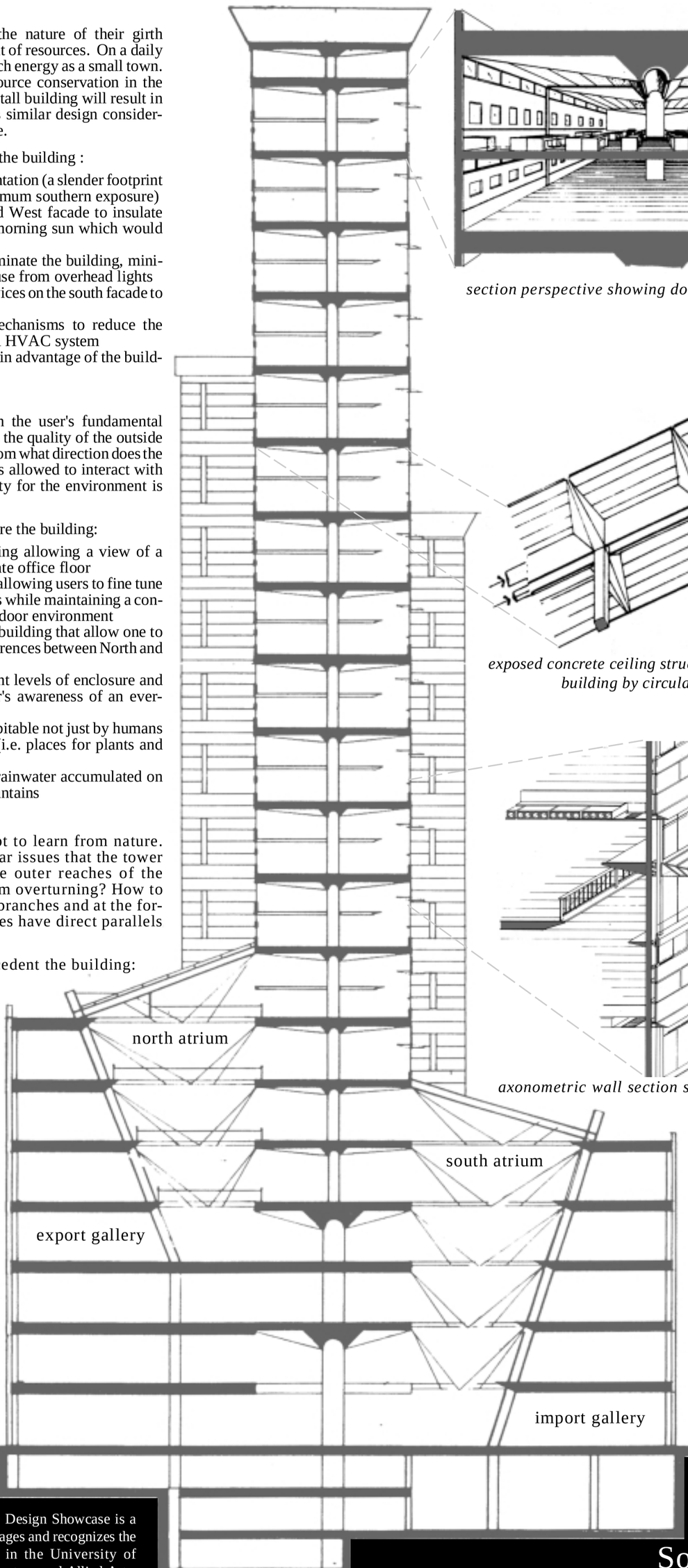
section perspective showing double height office space



exposed concrete ceiling structure passivly cooling the building by circulating cool night air within



axonometric wall section showing shading devices



The Solar and Sustainable Design Showcase is a quarterly event that encourages and recognizes the pursuit of sustainability in the University of Oregon's School of Architecture and Allied Arts. These and previous projects will be posted on our web site. Submissions are encouraged for Winter Design Showcase.

Solar Twist:
An Ecological Office Tower
by Adam Weiss

SOLAR AND SUSTAINABLE DESIGN SHOWCASE

Student Essay

If the life-supporting ecosystems are to survive for future generations, the consumer society will have to drastically curtail its use of the resources....But ultimately, sustaining the environments that sustains humanity will require that we change our values.

- Alan Durning, How Much is Enough

A Vision of a Sustainable World

by Billy Nachman

The frog does not drink up
the pond in which he lives.
-Proverb

Sustainability, in all its simplicity in meaning and practice, is presently lost in the dark and gloomy shadows of the industrialized machine that has clawed its way across our mother earth and stripped her of her life support system. Now, as her cries for help ring loudly across the plains, deserts, mountains, and forests of her skin, we as humans have begun to listen and take action. The reality is that only a complete overhaul and change in human lifeways can halt and reverse the current trends of environmental degradation. As we actively seek plans for a more livable and nurturing relationship with our natural surroundings, we must examine and question each and every aspect of our own life-styles. Through this process of self-analysis we may uncover the blueprints for a future of sustainability.

In establishing a plan for complete reform, we must acknowledge and highlight the major social structures that allow environmental destruction to continue. Politically, our government, as well as others, consistently offers support to the worst of capitalism and its stranglehold on the environment and the poor. Our government primarily sees us as consumers, rather than human beings with very basic human needs. Legislative measures and laws protecting the environment continually take a back seat to the monitary demands of manipulating, international corporations, who value financial profit more than life. Corporate profits are often used to feed and strengthen this cycle of manipulation. As long as "big brother" continues to visualize in this light, sustainability will remain a fantasy on the horizon of a human wasteland. The narrow-minded mentality of our present political system has a negative effect on almost every aspect of human life, thus furthering the demise of our once sharing and nurturing relationship with mother nature.

Politicians, and transitively, our government, continually look beyond the needs of a working class that is struggling to stay above the poverty line, instituting a corporate welfare system that insures the growth of big business and a decline in responsibility and compensation for our workers and environment. Yes, we do have the freedom of choice, yet these choices have been thoroughly filtered by the existing political and economic structures that support and promote consumerism, growth, and dependency. One cannot deny the need for a government, yet what aspects of life should it be governing? What political strategies could be implemented in order to create a more sustainable and equitable world? These questions need to be asked when we find ourselves voting for the representatives and laws that will affect our environment and the equitable distribution of resources among our people. Businesses could be financially rewarded or punished based on performance criteria in areas such as recycling, waste management, building design and construction, as well as health care, working conditions, and wages. We all need to be held accountable for the way our government is operating, and must take on the responsibility of changing the system. If we don't, who will?

Presently, our educational systems, whether they be school, family, or cultural, stress the importance of a cash-based economic system that is quickly spreading to all reaches of the globe. We are taught that quantitative growth is good, economic growth is beneficial, and the general trends of consumption are necessary and positive. These values are becoming part of our cultural blueprints, and thus are becoming ingrained in our natural upbringing. These ideas, however, were formed with little forethought as to their effects on the planet's ability to survive and sustain itself for future generations. Presently we find ourselves at a crossroads where we must evaluate and correct the material, methods, and manner in which we educate our children and each other.

The path to the sustainable world we seek begins with the understanding of the relationship that exists between ourselves and the earth. This understanding can easily be exposed through an educational system that values the coexistence of humans and the natural world. It is here that our quest shall begin.

Education must become more environmentally-based, and in doing so, envelope an understanding of a deeply rooted human connection to the earth. Education must promote an awareness in local, national, and global environmental issues, while exposing the mistakes and downfalls of our unsustainable past and present. Education must actively teach subsistence living through agriculture, allowing for a deeper connection to the natural cycles and seasons of the earth. Education must stress the importance of family and community, encouraging stronger bonds between us and our neighbors. We must realize a common goal of creating a better place to live and grow. We must be aware of the earth's limited resource base and realize that we live in a closed system with finite boundaries, exposing our inherent problems with overconsumption in relation to this closed system. As soon as these educational needs have been met, the path to a sustainable world will become more lucid, and we may begin to create and design those practices that will make the journey easier.

A driving force behind the sustainability movement is energy-efficiency and waste/resource management. We must consider energy alternatives, such as wind, solar, and small-hydro as clean and renewable substitutes for the our current systems of power production, which have led us toward an environmental crisis. This crisis now includes the storage and stockpiling of nuclear waste, the depletion of crude oil reserves, and the thinning of the ozone layer. Alternative systems offer both a cleaner product and long term financial savings. We must also consider where most of our energy is spent and how we might be able to design our homes, vehicles, heating systems, etc. to be more efficient. Passive solar design of our homes can increase savings in energy use by up to 50% without reliance on technological systems, which often require enormous amounts of energy to produce. If we can put to use some of these very basic principles in design and technology we will have taken a giant step towards reaching our goals.

Archology, a term used to describe architectural design that is inherently connected with the ecology of the earth, offers one solution to our waste and energy problems. Architect Michael Reynolds has created what he calls "Earthships." "Earthships are homes designed to heat and cool themselves, make their own electricity, catch their own water, consume their own sewage, and grow their own food. Like a ship, the buildings are meant to be self-contained, independent, and carry the inhabitant to a better future." (Solar Survival Architecture, Taos, N.M., pamphlet) Using waste, such as old tires and aluminum cans as the primary building materials, these homes are built into the ground on three sides, leaving the south side open to the benefits of solar radiation. As we redesign old structures and create new ones, we must design with the site's ecosystem in mind. In an interview with "The Urban Ecologist," eco-designer Sim Van der Ryn emphasizes the same notion in his own definition of ecological architecture. "Ecological Architecture takes nature as the foreground and not as the background, actively works with the ecological processes, and uses ecology not only in practical ways but metaphorically....[A] building is an organism...." Our homes and buildings, as best they can, should be designed as self-sustaining ecosystems within the larger ecosystems from which they feed. They should become part of nature and directly involved in its ecological processes, creating a more tangible awareness of our true needs for survival.

Sustainable living, in concept, is not difficult to grasp, yet on a global scale could take thousands of years to successfully create. Right now we live in an environmental nightmare, where human actions are based on the perception that we are at the center of the universe. This human-centric view has led us to the brink of environmental self-destruction. It is with this in mind, that we must come together as one fortified unit, protecting and defending that which we all hold in common, our Mother Earth. This in turn becomes a call to each and everyone of us, as individuals, to act upon our knowledge. Individual action becomes group movement, which begins the change we so desperately need.

background picture from Earthship, vol. 2 (1991) showing the construction of an Earthship wall using recycled aluminum cans

Fall 1998

Student Essay

You must teach your children that the ground beneath their feet is the ashes of our grandfathers. So that they will respect the land, tell the children that the earth is rich with the lives of our kin. Teach your children what we have taught our children - that the earth is our mother. Whatever befalls the earth befalls the sons of the earth....
This we know. The earth does not belong to man; man belongs to the earth....All things are connected like the blood which unites one family. All things are connected."

- Chief Seattle

Solar Information Center
Fall Lecture Series & Events Calendar

Fall 1998

Lecture Series

Joanne Tippett
*Thursday, November 5, 7:30pm, **Lawrence Hall room 177**, U of O*

Joanne Tippett of Holocene Design Company, is a sustainable designer and educator. She holds a BA in ecological design from Lancaster University, U.K., a Diploma of Permaculture Design and has studied The Natural Step with Karl-Henrik Robert. She has carried out five ecological site planning projects ranging in scale from a school of 4 hectares to a rural development center of 300 acres. She has run permaculture design courses and has lectured and given workshops in ecological design and strategic planning for sustainability in Southern Africa, the U.K., Germany, Australia and the USA. Examples of her work and her thesis on ecolgical design and permacutlure can be seen at http://www.holocene.net.

Edward Allen, A.I.A
*Friday, November 6th, 5pm, **Lawrence Hall room 177**, U of O*

Edward Allen, author of some of the best-known American writings on architectural technology, was the third recipient of the University of Oregon's Pietro Belluschi Distinguished Professorship in Architectural Design, during the '96/'97 school year. His books include *Stone Shelters* (1969), *How Buildings Work* (1980), *Fundamentals of Building Construction* (1985, 1990), *The Architect's Studio Companion* (1989,1995), *Architectural Detailing* (1993), and his latest, *Shaping Structures* (1998).

Edward Allen worked in Berkeley, California, as an associate with Moore Lyndon Turnbull Whitaker. Following Fulbright-sponsored research in Italy, Mr. Allen spent many years as an associate professor of architecture at the Massachusetts Institute of Technology. He has also taught at the University of Washington, Montana State University, the University of California in San Diego, and Yale University.

Since 1991 he has been in private practice, completing approximately fifty-five buildings in California and New England.

Sustainable Business Symposium
November 13th-15th, University of Oregon

The sustainable business Symposium will inspire a "bridge building" dialogue among business, environmental, social and civic communities, who will work together toward solutions while ensuring profitable businesses. If your interested in forging a lasting link between your organization's's long-term success and its ecological/social stewardship, this is a must attend conference.

Panels and workshops will include: Marketplace Sustainability, International Socioeconomic Development, Organic Foods, Full-cost Accounting, Transportation, Energy, Health, Green Architecture, Human Resources, Forestry, Community Planning and Consumer Awareness.

The Solar Information Center is sponsoring the Green Architecture Panel. It will take place Saturday November 14 from 9:30-11:15 AM in Room 100, Willamette Hall. Panelists will include:

Robert Peña, Assistant Professor of Architecture, University of Oregon
Linda Boothe, President, Oregon Dome Inc.
Abigail Mages, Co-owner, Environmental Building Supplies
Tom Faust, Redwood Rubber
Robert Hanson AIA, American Institute of Architects, Portland Committee on the Environment, (invited)

For further details call Mel Bankoff at 541-485-0495 or visit http://www.uoregon.edu/~sbs/tns.html.

Richard Perez
*Thursday November 19th, 7pm, **Lawrence Hall room 177,** U of O*

Richard Perez is a local writer and staff member of Home Power magazine and is one of the more informed and knowledgeable voices of solar power and its applications. An advocate of the "off the grid" energy movement, Richard brings an inspirational message for a better tomorrow through renewable energy and sustainable architecture.

Community Bookshelf
What's in the SIC Library

Fall 1998

In-House Library

These summaries are just a sampling of the books and videos in our library.

Eco-City Dimensions: Healthy Communities, Healthy Planet
edited by Mark Roseland, New Society Publishers. Gabriola Island, British Columbia, Canada 1997.

The Eco-City Movement has arisen from such sustainability paradigms as Bioregionalism, Appropriate Technology, Native World View, and the Green Movement. Its basis lies in the belief that with more than half of the world's population living in urban areas, cities are now the cultural, social, political and environmental determinants of society. The "Eco-City" concept is a vision of social justice, ecological economies, alternative transportation and sustainable land use planning.

Mark Roseland has gathered a wide array of thoughts on the Eco-City concept from theorists, practitioners, educators and activists. Eco-City Dimensions explores issues of city planning, health, energy use, transportation, housing and economic development. This is an invaluable primer on Eco-Cities and an excellent resource for anyone working towards creating positive futures.

We would like to thank Mark Roseland who donated this book to the Solar Information Center at the 1998 Hopes Eco-Design Arts Conference. Thanks Mark for the great talk and sing-a-long.

Gaviotas: A Village To Reinvent the World
by Alan Weisman, Chelsea Green Publishing Company. White River Junction, Vermont 1998.

In the early 1970's a group of Colombian visionaries and technicians decided to prove they could not only survive, but thrive, in one of the most brutal environments on earth, their country's barren, rain-leeched Eastern savannas. Despite the ongoing threat of political and narcotics related violence, for the last three decades the scientists, artisans, rural peasants, ex-urban street kids, and Guahibo Indians living in the village called Gaviotas have elevated phrases like *sustainable development* and *appropriate technology* from cliche to reality. Yet in the end, the real heroes of this village are not the human beings or their technologies, but the canopy of millions of Caribbean pines, planted by the Gaviotans as a renewable crop, which have sheltered the regeneration of the native rain forest.

Our Ecological Footprint: Reducing Human Impact on the Earth
by Mathis Wackernagle and William Rees, New Society Publishers. Gabriola Island, British Columbia, Canada 1996.

An “ecological footprint” is the area of land and water that is affected by a given population of people. Often the ecological footprint of a population is much larger than the physical footprint of its habitation. Because it takes into account, not just the area in which people live, but all the land and water needed to support their food consumption and waste production.

Our Ecological Footprint shows that our footprint often stretches far beyond our backyards and shows us ways in which we may reduce our impact on the land and water both locally and globally. Its is up to us to reduce this footprint before we use all the available resources on Earth. Our Ecological Footprint is an interesting and clearly written guide to help us shape our life-styles and policies to make “sustainability” more of a reality.

Who Owns the Sun?
by Daniel J. Berman & John T. O’ Connor, Chelsea Green Publishing Company. White River Junction, Vermont 1996.

If someone tried to build a wall to block out the sun, the people of the world would cry out for justice and change. Although unable to keep the sun from shining, businesses with energy interests are attempting to stop solar power from becoming a widespread global energy source. New innovations have brought solar technology and clean energy opportunities into the modern age.

Who Owns The Sun? exposes the truth and the lies behind the petro-chemichal culture and the capital infrastructure that supports it. As Ralph Nader puts it, *"Who Owns The Sun, lets the Sun shine in."*

Fall Term 1998 Schedule

Sat/Sun	M	TU	W	TH	F
26/27	28 **Classes Begin**	29	30	**Oct.** 1	2
3/4	5	6	7	8	9
10/11	12	13	14	15	16
17/18 **Solar Homes Tour**	19	20	21	22	23
24/25	26	27	28	29	30
31/**Nov.** 1	2	3	4	5 **Joanne Tippett**	6 **Edward Allen**
7/8	9	10	11	12	13 **Sustainable Business Symposium**
14/15 **Sustainable Business Symposium**	16	17	18	19 **Richard Perez**	20
21/22	23	24	25	26	27
28/29	30	**Dec.** 1	2	3	4

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