

Take 15 outstanding architecture students, put them in the wilderness for four days, make them create their own shelter and find their own food and what do you get? Sustainable architects.

This is our goal at the [Ecosa Institute](#), a nonprofit educational organization dedicated to incorporating sustainability into the design professions. The institute runs in-depth, total-immersion semesters for architecture, planning, landscape, and other design students.

As one element in an intensive sixteen-week semester, this first experience in the wilderness is intended to bring to designers a direct awareness of the natural environment and an understanding of what baseline sustainability really is.

But this is only one small part of the program. We call it a total-immersion program because we go full out for 16 weeks and expose our students to a huge volume of information and experiences.

Why Sustainability is Essential

The institute's educational philosophy is based on what I've learned in my own practice, which I've dedicated for the last 25 years to sustainable design and architecture. It all began in 1970 when I moved to Arizona to join Paolo Soleri's Cosanti Foundation and work on the [Arcosanti](#) project.

It was the right place at the right time for me. Soleri opened my eyes to the environment and to

the real reasons we are facing serious problems. I began to understand the huge impact architects and designers make and to see that they could also provide the solutions.

The importance of incorporating sustainable practices into architecture is evident from the daily headlines. As James Wines points out in his book [Green Architecture](#), "The building of shelter consumes one sixth of the world's fresh water supply, one quarter of its wood harvest, and two-fifths of its fossil fuels and manufactured materials."

In addition, buildings produce half of all greenhouse gases. By several estimates, we will double the size of the built environment over the next 20-40 years, making the creation and maintenance of the built environment one of the most resource- and energy-consumptive industries in the world.

Pollution is about inefficiency and waste; it's about bad design. Pollutants are the byproducts of our society that cause the environment to sicken, and an unhealthy bio-system ultimately means an unhealthy environment for people.

One perception that allows us to ignore pollution is that we believe ourselves to be separate from nature when in fact we *are* biology. Our cities, our technology, and our architecture give us the illusion of controlling nature when, ultimately, it is nature that controls us.

Learning to Teach Sustainability

After leaving Arcosanti I began teaching ecological design at [Prescott College](#), a four-year liberal arts college in central Arizona.

First, I tried turning students who were passionate about the environment into designers, but design is a very specialized art form. The language and the sensibilities are different, and, unfortunately, the role of design is poorly understood in our society.

Then in 1998 I founded the Ecosa Institute to do the opposite; to teach designers to become environmentalists. My goal was not just to tack on sustainable design to a conventional curriculum, but to restructure the underlying ethos of architectural education and bring a new sensitivity to the practice of architecture.

There's a lot of discussion about sustainable design and how to achieve it. Our program is about taking responsibility for what is happening and changing architecture so that good stewardship is built in.

There is also a broad dichotomy between what is being done in the realm of sustainable building and what is being done in architecture. I believe we shouldn't be thinking just about physical sustainability but also about economic, spiritual, and cultural sustainability.

Frankly, a lot of today's "sustainable" buildings ignore everything except physical sustainability, and most architecture ignores sustainability altogether. We are trying to bring the design part together with the sustainable part.

In his book *Sustainable Architecture*, James Steele notes: "...sustainability calls upon the skills an architect uses best — analysis, cross-comparison, synthesis, and deduction — leading to aesthetic choices that have a basis in fact rather than fashion."

A New Curriculum

So what would a sustainable architectural education system look like? I believe it takes a whole curriculum redesign from the ground up. It is not enough for architecture schools to tack on sustainable courses as electives. Transforming education means creating nothing less than a new paradigm for the architectural profession.

Most architectural educational programs are project centered with, as Steele notes, "...a strong emphasis on a hypothetical open-ended creative process developed in relative isolation with an authority figure evaluating when it is good, without collaborating with others in the studio, in order to produce a design product that is ...an object building, to be reviewed in abstract terms

by a jury."

In contrast, the Ecosa program is based on the "new realities" of design and design education:

- Reconnecting emotionally with nature
- Learning from natural systems
- Practicing whole systems thinking
- Rediscovering traditional wisdom
- Developing aesthetics with ethics
- Using appropriate tools and materials
- Learning from leading practitioners
- Using collaborative problem solving
- Learning through real projects
- Taking responsibility for the impacts of design choices

This educational approach attempts to avoid isolating architects and architecture from societal problems. The core concept is to take a whole-systems approach that focuses on healthy environments in the broadest sense of the word.

This approach requires understanding the wide range of impacts a project may have, including those that at first may not be self-evident. Ecosa students are encouraged to take a broad perspective.

Rather than focusing just on a project, they look at all of its potential impacts, both environmental and social, on the community and the biosphere. Then comes the search for ways to mitigate those effects while still producing an imaginative project that meets the clients needs.

Ecosa Projects

Ecosa students work on real projects with real client needs. We understand the need for design students to fly with as few restraints as possible, but there is also a place where "reality checks"

are needed.

Last year Ecosa students tackled a design for the Heritage Education Project at the Grand Canyon National Park. They met with National Park Service personnel, helped define the parameters of the program, brainstormed ideas, and presented their ideas to park staff at the end of the semester.

It was great to see our students presenting in such a professional manner and to have a very positive response from the Grand Canyon staff.

This year there are three major projects the students will be exploring. One for a local four-year college, one for a local university, and one for an aboriginal living skills school for Cody Lundin, the guide for the student's wilderness experience.

The students will work in teams on each project contributing their own solutions to the programs. As future architects, this experience will help them become team leaders rather than team dominators.

Help from the Masters

An important part of the program is bringing nationally known architects with outstanding design reputations and/or a long-term commitment to sustainable design to meet with the students. In 2000 Antoine Predock spent a day with the students, part of which was spent reviewing their work.

It was an inspiring interaction, especially because we held the session in the Nelson Fine Arts Center in Tempe, Arizona, a building Predock designed. He also agreed to be on our board of advisors, and we appreciate that kind of validation.

The students have also spent time with Will Bruder and Eddie Jones, and they have visited Rick

Joy's studio in Tucson. James Wines, Sym van der Ryn, and Pliny Fisk, all noted sustainable designers and architects, will be a part of the 2001 semester program.

Besides projects and visiting architects, the school offers daily lectures and presentations in topics as diverse as environmental economics, ecopsychology, the National Aeronautics and Space Administration's sustainability and global change, form and pattern in nature, and active solar systems.

Doug Balcomb from the [National Renewable Energy Lab](#) and Alexis Karolides from [Rocky Mountain Institute](#) are among other top presenters Ecosa brings to the program.

There are several three- and four-day field trips to sites throughout Arizona during the semester. One of the most extensive is a trip to the Hopi and Navajo reservations. This includes visits to ancient sites with anthropologist Chris Coder, plus meetings with the Hopi and Navajo people.

This trip is not only wonderful from the cultural point of view, but the spectacular landscapes we travel through are a real inspiration.

The Students Respond

The students who completed the Ecosa program last year described it as challenging, inspiring, and transformative. One student wrote: "I learned about the importance of a deeper textural awareness of things, to be cognitively aware of your environment. That good design is not a tacked-on experience, but one which is inter-layered and integrated; each component operates in the context of the whole."

I really believe that the role of the architect is changing, and unless the profession and its education change, architecture runs the risk of being marginalized.

As Eric Frampton notes in *Out of Site: A Social Criticism of Architecture*, "Few architects care to remind themselves that only 20 percent of the total built output in developed societies is subject to the advice of the profession."

by Tony Brown

Tony Brown, an architect for over 40 years, is founder and director of the Ecosa Institute. The next Total Immersion Program in Sustainable Design will run from August 27 through December 14, 2001. Interested students may contact the Ecosa Institute, 520-541-1002.