



BOORA ARCHITECTS

The Jerry Yang and Akiko Yamazaki Environment and Energy Building

Laying the Foundation for a Sustainable Future



Seeking Solutions, Educating Leaders

“The problems we face are so complex that no one team can solve them—you need multiple perspectives. Here at Stanford, early on, it was recognized that promoting collaborative work was important to our success in the field.”

James O. Leckie

THE C. L. PECK PROFESSOR OF ENVIRONMENTAL ENGINEERING AND APPLIED EARTH SCIENCES

“The vision is of an internationally recognized high-performance building that does more than simply bring further accolades to the campus. Itself designed and intended to be a teaching tool, the building will inspire faculty, staff, students, and visitors to take the next steps toward a sustainable future.”

Science and Engineering Quad Sustainability Committee

The Jerry Yang and Akiko Yamazaki Environment and Energy Building

Laying the Foundation for a Sustainable Future

Environmental issues are rarely the province of one field of study or even one nation. They are global concerns of great complexity. In 2004, Stanford launched the campus-wide Initiative on the Environment and Sustainability with this reality in mind: To have a lasting impact, the university must draw together expertise from throughout the campus. This is the inspiration for the Jerry Yang and Akiko Yamazaki Environment and Energy Building, dedicated in March 2008.

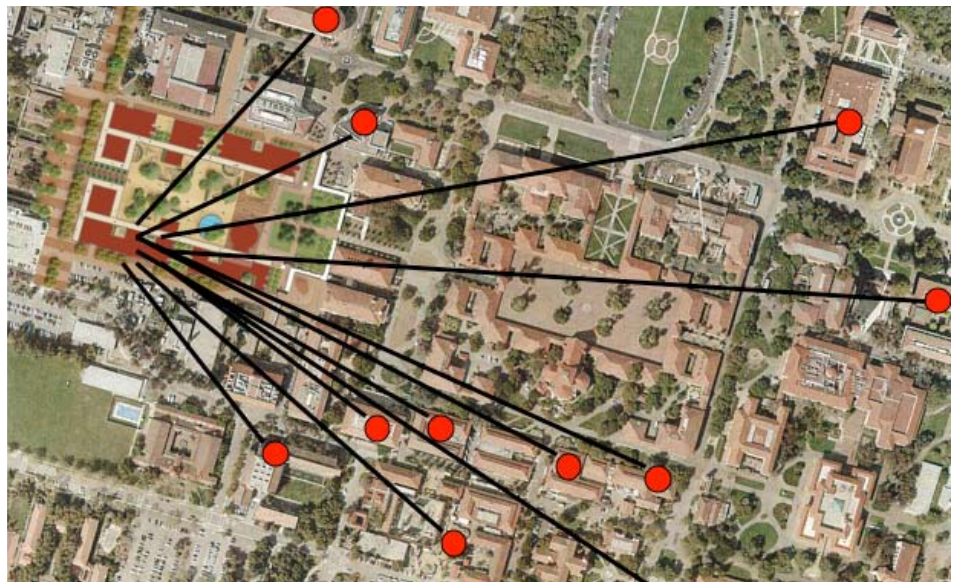
Known on campus as the Y2E2 Building, it gathers under one roof ecologists and economists, biologists and legal scholars, earth scientists and engineers, and policy analysts. It supports specific projects and creates a breeding ground for new collaborations. Constructed to high environmental standards, the building also showcases sustainable building practices and serves as a living laboratory for the research conducted inside.

One of four buildings in Stanford’s plan for a new Science and Engineering Quad (SEQ), the Y2E2 Building is part of the university’s campus-wide strategy of grouping facilities and people to maximize interaction.



A WHOLE EARTH, A WHOLE UNIVERSITY

The Emmett Interdisciplinary Program in Environment and Resources (E-IPER) combines the study of the physical sciences and engineering with economics, law, international studies, and other fields, and gives students access to Stanford's most distinguished experts in these areas. When Kirsten Oleson, PhD '07, joined the program in 2003, "all the students and faculty were scattered. We got a list of 100 faculty members across campus, and their doors were open to us. Now the program has a central home, which is a powerful resource for everyone." The new building gives E-IPER a home base with a like-minded community drawn from throughout the university.



THE Y2E2 BUILDING CONCENTRATES IN ONE FACILITY MANY ENVIRONMENT AND ENERGY PROGRAMS THAT WERE ORIGINALLY SPREAD THROUGHOUT STANFORD'S CAMPUS.

A COMMUNITY FOR COLLABORATION

Stanford's Initiative on the Environment and Sustainability is a university-wide effort to pull together all the expertise needed to address complex environmental challenges. The cornerstone of the initiative is the Ward W. and Priscilla B. Woods Institute for the Environment at Stanford, which serves as an incubator for transformative research on a number of environmental issues and coordinates cross-training for students in various fields. In addition, in January 2009, Stanford inaugurated the Precourt Institute for Energy to advance work on energy efficiency, sustainable energy, and ways to reduce global carbon emissions. The Y2E2 Building provides a permanent, shared home for the Woods and Precourt institutes and their thriving multidisciplinary efforts.

The building also houses the Department of Civil and Environmental Engineering (CEE), another key player in research and teaching on the environment and energy. This department includes experts in structural engineering and construction management, as well as environmental engineering, fluid mechanics, and atmospheric research. The department is reorganizing these divisions around the central theme of sustainability, spanning natural and built environments. For example, recognizing that buildings account for as much as 50 percent of the energy used in the United States, one department-wide project is designing a "green dorm" to be built on the Stanford campus. Placing the CEE department alongside the Woods and Precourt institutes facilitates collaboration on issues of pivotal environmental importance.

Y2E2 also houses specialized research centers and teaching programs from around the university. These include the Environmental and Natural Resources Law and Policy Program, the Collaboratory for Research on Global Projects, the Bill Lane Center for the Study of the North American West, the Emmett Interdisciplinary Program in Environment and Resources, the undergraduate Earth Systems Program, the Goldman Honors Program for undergraduates, and the new undergraduate major in architectural design.

These programs form a community of approximately 500 faculty, students, and staff, all focused on issues related to the environment and energy and joined by a regular influx of visitors and temporary occupants from elsewhere on campus. The building has become the perfect meeting ground for leaders from business, government, nongovernmental organizations, and academia to discuss environment and energy issues in a neutral forum firmly grounded in science and informed by other fields.



Y2E2 BUILDING—NORTH ELEVATION



FOUR LARGE ATRIA (THREE SHOWN) FOSTER INTERACTION AMONG BUILDING OCCUPANTS AND CONSERVE ENERGY BY DISTRIBUTING AIR AND LIGHT.

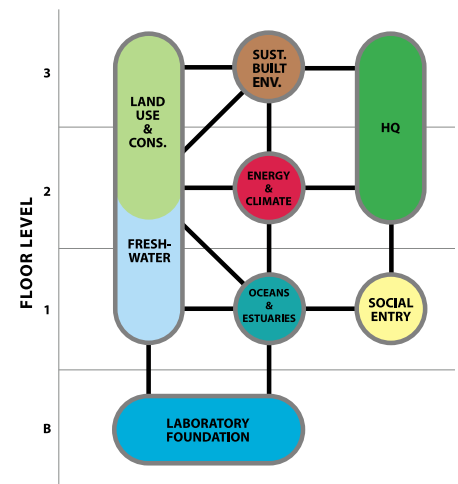
DESIGNED FOR PROBLEM SOLVING

The 166,000-square-foot building’s design was carefully planned in consultation with faculty and students to meet three objectives: providing state-of-the-art research space, promoting collaborative work, and demonstrating sustainable building practices.

Perhaps the most important feature of the design is the way occupants are grouped: not by the academic disciplines they represent, but according to the problems they hope to solve. Five focal areas define the building’s layout, reflecting the themes of the environmental initiative—climate and energy, freshwater, land use and conservation, oceans and estuaries, and sustainable built environment. For programs involved in multiple focal areas, such as E-IPER (see sidebar, opposite), “headquarters” spaces provide a central base.

Structurally, the building is organized around four large atria, open from the underground level to the third floor, which helps make the entire building as “permeable” as possible. Like the atria, open floor plans foster interaction among and within the focal areas, with private spaces for individual work and quiet meetings configured to provide easy access to larger, shared spaces, such as offices, conference rooms, labs for both teaching and research, and central classrooms. Inviting common areas include a large lounge and several balconies and terraces. Equipment-intensive labs are located in an underground level that will connect all four buildings in the SEQ.

Social spaces extend beyond the building into its garden and into the main courtyard of the SEQ. The building’s ground floor includes an auditorium-style classroom and large conference room adjacent to a spacious entry that welcomes faculty and students from elsewhere on campus. All of these elements encourage collaboration among the many programs in the building and make it as accessible as possible to visitors.



FACULTY AND STUDENTS FROM DIFFERENT FIELDS OF STUDY ARE GROUPED TOGETHER ACCORDING TO THEIR FOCAL AREAS.



THE WOODS INSTITUTE LEADERSHIP AND TRAINING PROGRAM helps environmental scholars work more effectively with government and business leaders and provides policy makers with science-based training on environmental issues. Based in the Y2E2 Building, this program promotes better environmental policy nationwide. A core component is the Leopold Leadership Program, a competitive fellowship that provides training, networking, and outreach to help leading environmental scientists move ideas into action and advance science-based decision making.



THE Y2E2 BUILDING ATRIA BRING NATURAL LIGHT TO ROOMS AND LABS ON ALL FOUR LEVELS.

BUILT TO CONSERVE

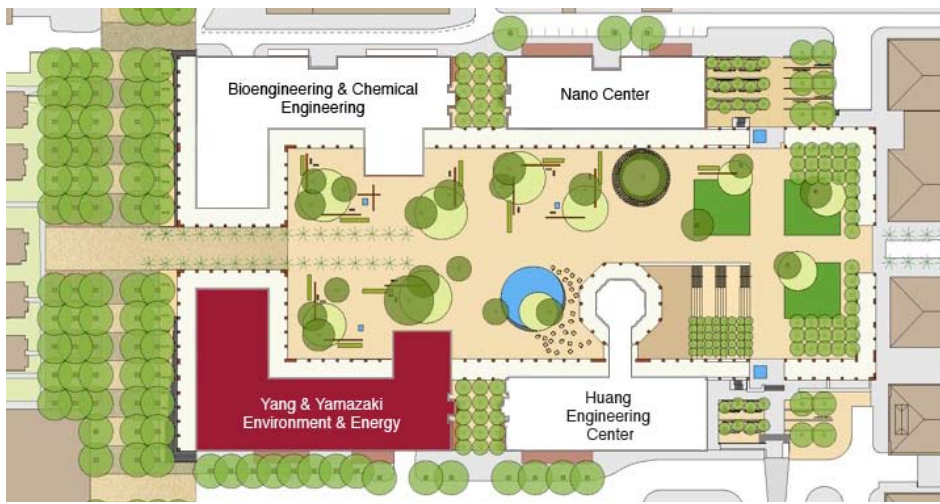
The Y2E2 Building practices what its occupants preach by being as energy and resource efficient as possible. The building exemplifies sustainable design and construction that is both attractive and economically sound. As Woods Institute Director Jeffrey Koseff puts it, “green doesn’t mean compromising aesthetics.” Koseff is the Perry L. McCarty co-director of the institute, the William Alden Campbell and Martha Campbell Professor of Civil and Environmental Engineering, and the Michael Forman University Fellow in Undergraduate Education.

The project followed sustainable construction practices that dramatically reduced construction waste. The building’s design is projected to reduce energy consumption by 56 percent and potable water consumption by 30 percent for the building and 100 percent for landscape irrigation, compared with traditional design standards. All of the energy-saving measures in the building will pay for themselves within 6 to 10 years.

Some of the same features that promote interaction among the building’s occupants are also part of the building’s energy conservation strategy. The four atria function as the building’s “lungs” by circulating fresh air and also distribute natural light in conjunction with extensive use of glass and other translucent materials. This design greatly decreases the need for powered ventilation and electric lighting.

In addition, building materials have been designed to retain heat during the cold months, and the ventilation system has been engineered to draw in cool night air during the warm months. Other conservation techniques include solar panels mounted on the roof of the building, high-efficiency light and water fixtures, recycled water for toilet flushing, and landscaping with native drought-tolerant plants. Toilets recycle water from the university’s on-campus energy plant (which supplies all of Stanford’s electricity, selling the remainder to the local utility). Climate-responsive irrigation controllers draw nonpotable water from an on-campus lake.

In effect, the entire building constitutes a laboratory for sustainable design techniques. To help students and faculty study these techniques in action, the Y2E2 Building is instrumented so that all occupants and visitors can monitor energy and water use throughout the structure. This obviously has special value for those in the sustainable built environment focal area, who are learning an enormous amount from the very building in which they work. But it is hoped the impact will be much larger, as the project inspires others to adopt similar practices and the building, like many of its occupants, influences future high-performance structures. In a greater sense, the building is a physical manifestation of the principle at the heart of the environmental initiative: sustainability.



AT THE CROSSROADS OF SCIENCE, ENGINEERING, AND MEDICINE

The Y2E2 Building is the first of four new buildings forming a new science and engineering quad (SEQ) to the west of Stanford’s Main Quad. Other buildings in the 8.2-acre SEQ will include the Jen-Hsun Huang Engineering Center, a new Center for Nanoscale Science and Technology, and a new Bioengineering and Chemical Engineering Building. When the first two of these three buildings are completed in 2010, the university plans to begin construction on the final building.

Y2E2 occupants form the beginning of a multidisciplinary community of approximately 1,700 faculty and students who will share research and teaching spaces designed to promote interaction. Stanford’s best work in areas like biochemical engineering and nanotechnology may hold the key to problems in the environment and energy. The SEQ will make such applications far more likely and accelerate them dramatically.

The SEQ in turn is part of Stanford’s Science, Engineering, and Medical Campus (SEMC) Plan for the western region of campus. The SEMC Plan will better connect scientists and engineers in the SEQ not only with colleagues in biology, chemistry, computer science, and physics, but also with researchers and physicians at Stanford University Medical Center. Few universities place such a range of talents on a single campus, let alone within walking distance of each other. Y2E2 Building occupants are likely to work closely with colleagues throughout the SEMC on issues such as pollution, which have direct connections to human health, or methods like computer modeling, an essential tool in studying natural systems.

In this context, the Y2E2 facility is much more than a building. It is part of Stanford’s effort to change the entire university’s approach to research and education in order to address some of the world’s most pressing needs. Through the Initiative on the Environment and Sustainability, this multidisciplinary approach is dramatically increasing Stanford’s impact.

In February 2007, Stanford trustee Jerry Yang, ’90, MS ’90, and Akiko Yamazaki, ’90, committed \$50 million toward the Y2E2 Building. “The future is in interdisciplinary problem solving,” says Yamazaki. “What better place than Stanford for that. This building ... will really be drawing on all the strengths that Stanford has.” Yang adds, “I think in five, ten, or fifteen years, we’ll be able to say, ‘Wow, look at all the great things that have come out of that building.’”



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GIFT OPPORTUNITIES

Many opportunities exist to support the Y2E2 Building and to be recognized by naming the following spaces. Details are available on request.

- Atria/Entryways \$5 million–\$8 million
- Classrooms \$100,000–\$750,000
- Terraces \$150,000–\$2 million
- Conference Rooms \$50,000–\$500,000
- Project Studios \$150,000

