



POWER HOUSE

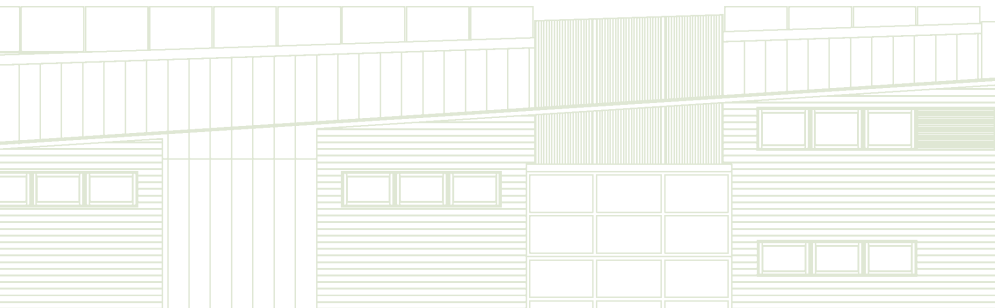
BY SARAH SPELL

PHOTOGRAPHY BY DOUG DUGAS

IN A SPACIOUS WAREHOUSE IN THE MIDDLE OF LAFAYETTE, A DREAM IS being built. • It is made of wood and glass, of photovoltaic cells and polystyrene foam. • It is being built from memory. From moonlight shining on a weathered cypress porch. The smell of gumbo simmering on the stove. The sound of music and laughter drifting across the bayou. • It is being created from a vision, a desire to make *la bon vie* — the good life — affordable. • Dr. Geoff Gjertson is faculty advisor for the BeauSoleil Louisiana Solar Home project. “We’re building something that’s affordable, reproducible and appropriate to our culture,” he observed. • That “something” is an 800-square-foot house that will generate its own power from rooftop solar panels, collect its own water when there is rain and heat the water with solar energy. In fact, it’s designed to produce more energy than it uses.

Members of the BeauSoleil team consider color swatches for the home’s interior. Shown, from left, are: Elizabeth Rountree, interior design student; Greg Jefferson, architecture student; Megan Durio, interior design student; Dr. Geoff Gjertson, faculty advisor; and Catherine Guidry, architecture student.





COURTESY OF TEAM BEAUSOLEIL

'I'm interested in creating architecture that connects people to the natural environment, rather than separating them from it. Between air conditioning and television, we've been separated from the natural environment, to our detriment. When you can reconnect to nature, you have a richer life.'

EDDIE CAZAYOUX

\$50,000 a year. The HUD (Housing and Urban Development) calculator that's available online basically shows that a family that makes only \$50,000 a year can only afford a \$120,000 house. So, that was our goal — to get the production model down to \$120,000," Gjertson explained.

"The problem with a lot of so-called 'affordable' housing is that it saddles people with a cheaply built house that's very expensive to maintain. So, our goal is to not only design a house that ultimately would be affordable when it goes into production, but a much better house, too."

The BeauSoleil home is designed to meet national standards for environmentally sustainable construction. The Leadership in Energy and Environmental (LEED) design standards are set by the U.S. Green Building Council, a consortium of industry and non-profit leaders. Gjertson said even though the Decathlon does not require competing teams to meet those standards, the BeauSoleil team has embraced them to increase students' working knowledge. "Eventually, these standards are going to be mandatory, especially in public buildings," he explained.

To achieve the goals of sustainability and affordability, Gjertson enlisted the help of one of his mentors, Eddie Cazayoux, a UL Lafayette professor emeritus. During his 13 years as director of the university's School of Architecture, Cazayoux helped create a highly regarded program that provides challenging, hands-on opportunities for students. An expert in sustainable design, he knows how to create homes that work in concert with Louisiana's hot, humid climate.

Combining technology and tradition, the home's southern façade features solar panels and functional cypress shutters.

WHILE ITS TECHNOLOGY is contemporary, its design incorporates traditional features such as the kitchen's high ceiling. Its soaring, 13-foot, five-inch height enables heat to rise and cooler air to settle.

It's an accommodating host, offering just the right setting for an intimate dinner for two, or enough room for a *bal du maison*, a traditional house party, complete with live music and dancers two-stepping on the porch.

Its design can expand with a growing family. Countertops in the kitchen and bathroom are suitable for those with disabilities. It's designed to withstand hurricane-force winds and can be elevated to provide housing in areas prone to flooding.

The project takes its name from the French word for sunshine, but its title also gives a nod to the Grammy Award-winning ambassadors of Cajun culture, BeauSoleil avec Michael Doucet. (Doucet and the band are supporters of the project.)

In October, the house itself will be-

come a cultural ambassador, when the BeauSoleil team tests its design on an international stage: the 2009 Solar Decathlon to be held on the National Mall in Washington, D.C. The UL Lafayette team is one of only 20 in the world qualified to compete in the bi-annual event organized by the U.S. Department of Energy.

Among the competition are teams from Rice University, Cornell University, Ohio State and Penn State. The BeauSoleil team will also take on Germany's Technische Universität Darmstadt, winner of the 2007 contest.

Gjertson acknowledges that his German counterparts created a beautiful, energy-efficient house. "But it might cost a million dollars to build. It's unrealistic to think that most people would spend that kind of money on a house."

Instead of merely following the contest rules, the UL Lafayette team increased the degree of difficulty by creating a state-of-the-art, sustainable home that the average Louisiana resident can actually afford.

"The median income in Louisiana is

Cazayoux has helped build a strong foundation for UL Lafayette's BeauSoleil project. In 1983, he and colleague Hector LaSala designed an experimental home, the Cade Energy Research House, that was then built by students. The project won an Energy Design Innovation Award from the U.S. Department of Energy. Cazayoux also established the UL Lafayette Building Institute, which gives students the opportunity to design and build structures.

His approach is simple, but not simplistic. "I'm interested in creating architecture that connects people to the natural environment, rather than separating them from it. Between air conditioning and television, we've been separated from the natural environment, to our detriment. When you can reconnect to nature, you have a richer life."

Cazayoux stresses the importance of passive design. In architecture, "passive" refers to design elements such as positioning a structure to take advantage of prevailing winds and the path of the sun. "You do everything you can possibly do passively and then you add energy or a mechanical system to supplement that," he explained.

To help students gain insight into passive design, Cazayoux invited a unique group of visitors to campus for a roundtable discussion. "I brought together an older white lady, an older black lady, a Creole Native American, a



Professor Emeritus Eddie Cazayoux and architecture students make sure everything goes according to plan; he has been involved with the BeauSoleil project since its inception. Shown, from left, are: Christopher Leger, Jeremy Credeur, Gretchen Lacombe-Vanicor and Cazayoux.

BLESSED BE THIS HOUSE

The Rev. Chester Arceneaux blessed the BeauSoleil home at a dedication ceremony March 4. The pastor of Our Lady of Wisdom Catholic Church on UL Lafayette's campus penned a prayer especially for the occasion.



"The work we begin today should enliven our faith and make us grateful. We know the familiar words of the Psalms: 'If the Lord does not build the house, in vain do its builders labor.'

"In a sense, we are God's own co-workers. Let us pray for His help in this celebration. May we use the gift of the sun, the wind and water and realize that we are called to be good stewards of the earth and to protect our environment. May we become aware of the earth's beauty and seek renewable energies in green building technology. May we use our gift of creativity and build upon God's kingdom so that our children's children may also enjoy the benefit of God's creation upon this earth.

"Lord, we ask you to bless the BeauSoleil house. My brothers and sisters, may the Lord bring this construction to its successful completion. May His protection be upon all those who labor and work. May His blessing be upon the benefactors who provided gifts so this may be built and may He bless our great university as we realize that each of us is called, through our gifts, to continue to build our world through the resources that we are given on earth. Almighty God, bless us, Father, Son and Holy Spirit. Amen."

Native American, two Cajun guys from around Pecan Island and a young guy I had designed a house for that's totally off the grid." The elders, some of whom were in their 80s and 90s, had all lived "off the grid" before there was any other option.

"We talked about what life was like. About water — how they collected and used water. About keeping food in the house. Cleaning your clothes, sewerage, keeping yourself warm in the wintertime and cool in the summertime. How do you do all that without running water, without electricity?"

"It was a real eye opener for the students," Cazayoux said. Students also studied examples of local architecture, including Cajun and Creole structures.

Cazayoux and Gjertson said that passing on those cultures to students was crucial, because students are at the heart of the BeauSoleil endeavor. "As much as possible, I try to step back and get out of their way. This is really their project, not mine," Gjertson said.

Over the past two years, more than 200 students have devoted some 100,000 hours to the project.

Catherine Guidry is one of eight graduate students who have been involved with the BeauSoleil project from the start. She serves as its public relations officer. "I'm an architecture student, but the business education that I'm getting is intense. Being able to work with professionals in the community, with professors and with other students has shown me how to work with a variety



Architecture students create a model of the Louisiana BeauSoleil Solar Home. From left: Denisse Castro, Jared Leger and Christopher Dufreche.

of different people and how to work together."

At the university level, the project draws on interdisciplinary talent and expertise, incorporating numerous departments, including architecture and engineering, industrial design and interior design, renewable resources, computer science, business and marketing. Gjertson

and Cazayoux are among 28 faculty team members.

The entire project has a budget of \$625,000. This figure includes several big-ticket items: designing and building the house; warehouse rent; transporting the house to Washington, D.C.; and team travel costs. The U.S. Department of Energy gives each team \$100,000. "We had to go out and raise the rest. And the community has responded. They are investing in our ideas," Guidry said. Support has come in the form of money and in-kind donations.

Louisiana System Built Homes of St. Martinville, La., has been a key contributor. The company manufactured and put together the walls of the BeauSoleil house from structural insulated panels. Made of foam sandwiched between particleboard, the panels are strong and energy efficient.

"I think a lot of the time, projects like this have had the goal of mass production, but never really got the producer involved," Gjertson said. "But Louisiana System Built Homes is helping us build the first one, so it's not a huge stretch for them to think that they could actually build the final production model."

Meanwhile, a California-based company, NanaWall Systems Inc., is helping develop what Gjertson calls the most innovative feature of the BeauSoleil home, the transitional porch. The porch is based on a traditional home design called a dog trot, which includes an open breezeway.

In the BeauSoleil home, this covered area divides the space into two distinct

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zones, with the kitchen on one side and the living room, bathroom and bedroom on the other. Surrounding the transitional porch are six doors, hung on an overhead track, designed by the BeauSoleil team and produced by NanaWall.

The doors, which rotate around the track, can also function as walls, offering great flexibility. The breezeway can be transformed into an indoor space, creating additional dining space adjacent to the kitchen or making the living room larger. Fixed, pull-down mosquito screens allow the space to be used as a sleeping porch.

"NanaWall has versions of the doors, but the exact system they are doing for us has not been done before. So, they're real proud of it and they want to showcase that," Gjertson said.

Showcasing a prototype home on the National Mall involves even more than designing and building an innovative house. Along with the Decathlon judges, some 200,000 visitors are expected to tour the BeauSoleil home.

For the BeauSoleil team, the devil may be in the details.

Packing will be a chore. To make it easier, the team has created a schematic drawing — a place for everything and everything in its place. It will take two 18-wheelers, plus a smaller truck, to haul equipment and gear.

The home's roof panels will have to



To test their design, team members installed solar panels on the roof of Madison Hall on the UL Lafayette campus. The panels feed energy back into the university's power system. Shown, from left, are: Dr. Robert Henry, a UL Lafayette engineering professor; engineering student Thomas Bosch; and architecture students Gretchen Lacombe-Vanikor and Scott Chappuis.

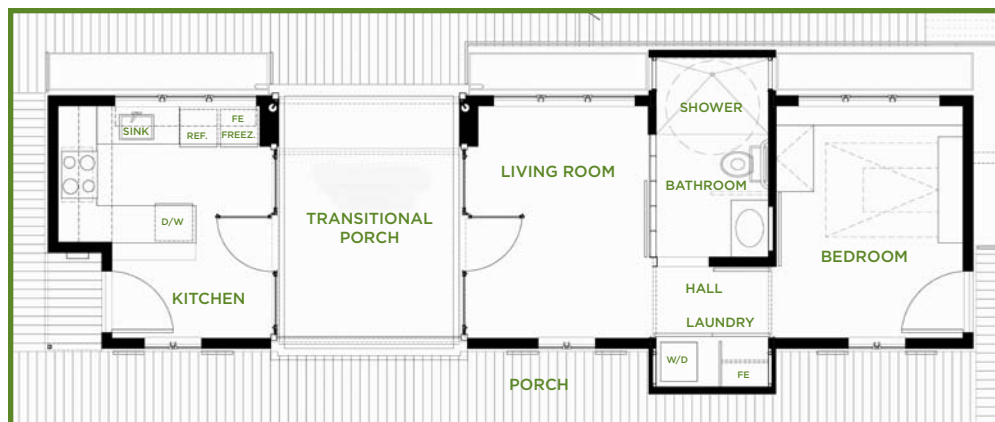
be removed for the trip. Once it arrives on the mall, the team will have just four days to reconstruct it and prepare it for visitors. That includes everything from making sure the plumbing works to exterior details, such as adding native landscaping and setting out trash and recycling receptacles.

Gjertson said the real-world challenges and limitations of the competition

"It's an opportunity for them to gain an intense, intimate experience with sustainable design that they wouldn't be able to have any other way. Even though they'll never have this exact project again, they'll be prepared for almost anything after having gone through this."


He also said he hopes the BeauSoleil Louisiana Solar Home will have far-reaching impact.

"Team BeauSoleil is proposing a new paradigm for living on the Gulf Coast — one that is sustainable and takes into consideration our climate, culture and the ever-increasing energy crisis. One of the ways to do that is to live much



have brought out the best in his students. "I think that's something a lot of academics think they have to shield their students from, because it stifles creativity." Instead, Gjertson said having a meaningful challenge "actually forces them to be more creative.

more efficiently, with less of an impact on the environment. I think it will return us to a way of living that is actually more generous and more resilient." ■

 www.beausoleilhome.org