



Solar Decathlon

Energy We

Can Live

With

August/September 2002

Director's Note

The Solar Decathlon is designed to motivate our nation's best and brightest to design and build the perfect house—one that is innovative and can forever generate its own power. The house not only needs to be a delightful place to live, but it also has to provide all the inhabitants' energy requirements from within the space it occupies. This is a monumental challenge in and of itself. But we have gone even farther and challenged students to not only do it better than their peers, but also prove it on a national stage!

I applaud all of those involved in the Solar Decathlon—sponsors, organizers, and participants. You have my deepest thanks, respect, and admiration. You are true pioneers and visionaries. The benefits from all of your hard work will be far reaching. Everyone who enters the village and walks into the houses will be taking a giant step toward a brighter future.

Whether you are an architect, engineer, student, or homeowner, we all need to work together to build the future and develop more plentiful sources of energy we can live with.

Richard King

After the Competition: The Real "Housework" Begins

In one sense, the competition ends in October, but that month also marks a beginning. At that time, the Solar Decathlon houses will begin putting down roots and finding someplace to call home—and then the real "housework" begins. Most of the houses will end up teaching valuable lessons. One of them will show off at a prestigious science museum, and another may end up as part of a national park.

Final installation plans for all 14 houses, although not set in stone, are far enough along to see that a whole lot of learning will be taking place. The **Virginia Tech** house will "live" on campus as part of an evolving research agenda. "Even in the beginning, we always looked beyond the competition," says faculty advisor Robert Schubert. "We will occupy the house and

fine-tune the operating system." Working with a sponsor, the Virginia State Energy Office, the team plans to develop an educational program for K-12 students.

The **University of Missouri-Rolla/Rolla Technical Institute** team is excited about taking its house to the Missouri State Fair. The Missouri Department of Natural Resources, a team sponsor, is eager to showcase the house in a place where it's sure to draw crowds. Once back on campus, the house may be used for guest lecturers or as student housing for team members. The team will continue testing the house and see how its energy performance shapes up year round. According to faculty advisor Eric Showalter, "We will compete in more Solar Decathlon competitions. Eventually, we'll have a solar village."

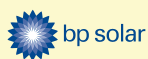
Continuing research is also the norm at College Station, where Keith Sylvester, **Texas A&M** faculty advisor, says, "The bigger goal is the future: community outreach. We will place the home in our local green space to demonstrate solar energy and building construction." On campus, the team will use the house as a demonstration for visiting contractors and other industry representatives. Team members will be invited to live in the house and conduct research.

At press time, the **Crowder College** house was still for sale. Earlier this year, the house was listed for auction on eBay. The top bidder (from southwest Missouri) is working out financing and code restrictions. In the meantime, the team would love to find a sponsor to donate \$75,000 so that the house could stay on campus. Some students will have worked on the project for two years, which represents their entire college career at Crowder (a two-year school).

The **Carnegie Mellon** house is being donated to a nonprofit community organization. A deserving family might live in the house, or it might be used as part of a community center. The Community Design Center of Pittsburgh is helping the team decide, based on the interest level and final installation plans of various community groups that might apply.

The **University of Virginia** campus will boast a new faculty guest house, thanks to that school's participation in the Solar Decathlon. "The house

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Real "Housework" Begins

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will be an ongoing research tool for engineering and architecture students, a living demonstration for future students," says John Quale, faculty advisor. The house will also serve as an educational resource for K-12 tours.

Before returning to Austin, the **University of Texas** house will make a few whistle stops—the U.S. Green Builders Council home tour, the Association of Architects home tour, and the American Solar Energy Society Conference in June 2003. Then it travels home to the Center for Maximum Potential Building Systems, where the house will be used for continued research and also in class work. Students will offer tours and open house events once a month.

Installation plans for two Solar Decathlon houses—from the **University of Colorado** and the **University of Maryland**—were unresolved at press time. Colorado students voiced no desire to sell the house, but they don't know if they can afford to keep it. The Maryland team members investigated auctioning off the house, but would prefer to keep it on campus as a learning laboratory, if they can locate a site and make it work.

The **Auburn University** team has enjoyed "loads of campus support" for keeping its house. It will be placed on the agriculture campus, landscaped, and used as office space and also for educational tours. The house will be on display and used as a teaching vehicle.

In Charlotte, the **University of North Carolina** house will be a permanent educational component of the university—a classroom that serves both architectural and engineering students and displays the evolving technologies of the living and building environment. It will also be associated with a program at the university called Ventures (similar to Outward Bound), which has a strong interest in sustainability.

The **University of Puerto Rico** house has two campuses vying for it. Both the Mayagüez and Rio Piedras campuses are working on the project—and both want the house. They're now discussing installing the house on a neutral third campus. It may serve as a residence for invited professors or guest speakers. Another scenario is to adjust the roof slope closer to what's appropriate for the Puerto Rican latitude and have it travel to different shopping malls as an educational display.

After the competition, the **University of Delaware** house will be exhibited at the Franklin Institute in Philadelphia, a high-profile science museum. The connection is that the team received a grant from a sustainable development foundation in Philadelphia.

Team members hope that the house will then be displayed permanently on campus and used for public and school tours, for research, and for undergrad education. The team will also work with a horticulture class at the university to landscape the house grounds.

Tuskegee University will host a permanent site on campus for its team's Solar Decathlon house. The plan is to have as many students as possible involved in it, and also to use the house as a pipeline for high school students. Tuskegee is very active in reaching out to high schools, and this is another vehicle for doing this. The National Park Service operates the Tuskegee University Institute and George Washington Carver Museum. The Solar Decathlon house is now part of this program for the summer, and the team is working toward having the National Park Service extend visitation to their permanent site.

Susan Moon

Solar Decathlon Communications

New Design and Livability Jury Member

Designer/builder Steven Paul Badanes not only designs buildings, but he also lives onsite in a tent or Airstream trailer during construction, making adjustments throughout the building process. His designs celebrate energy-efficient features and an innovative use of materials, while questioning conventional architectural practice.

Badanes is most noted as a founder and partner in Jersey Devil Design/Build firm (1972 – present), a group of architects, artists, and inventors committed to the "interdependence of design and construction." Badanes has lectured on Jersey Devil's work at more than 100 universities in the United States, Canada, Mexico, and Europe. The firm's work has been the subject of two books: *The Jersey Devil Design/Build Book* (1985) and *Devil's Workshop: 25 Years of Jersey Devil Architecture* (1997). In addition to these books, Badanes has published 244 publications since 1973.

Currently, Badanes holds the Howard Wright Endowed Chair at the University of Washington, where he leads design/build studios that focus on community service projects for nonprofit organizations. His main areas of research and scholarship include sustainable building technology and community-based design/build projects.

Badanes holds a Bachelor of Arts degree from Wesleyan University (1967) and a Master of Architecture degree from Princeton University (1971).



The Solar Decathlon Contest Schedule

Thursday, September 19 — **Begin:** Construction

Monday, September 23 — **Begin Evaluation:** Graphics & Communication (Web sites)

Date	Contests	Team Tasks
Friday, September 27	Begin Evaluation: Design Jury evaluates drawings: Design Presentation & Simulation	
Saturday, September 28	Begin Evaluation: Design Jury tours: Design & Livability House tour judging: Graphics & Communication	Begin: Solar Power only TV/Videoplayer required
Sunday, September 29	End Evaluation: Design & Livability Begin Monitored Contests: Getting Around (9 a.m. – 7 p.m.)	Grocery store run Pantry delivery Hains Point loop in East Potomac Park Daytime & nighttime lighting evaluations (select teams) TV/Videoplayer required
Monday, September 30	Evaluation: Engineering Design Panel evaluates drawings: Design Presentation & Simulation Newsletter & contest diary: Graphics & Communication Engineering Design Panel tours homes to evaluate consumer appeal and innovation in contests* Begin Monitored Contests: The Comfort Zone (24 hour continuous, temperature 69°–78°F) Refrigeration (24 hour continuous) Hot Water (24 hour continuous) Energy Balance (24 hour continuous) Lighting (8 a.m. – 10 p.m.) Home Business (required operation 9 a.m. – 5 p.m.) Monitored Contests: Getting Around (9 a.m. – 7 p.m.) End Evaluation: Design Presentation & Simulation	Dishwashing Hot water draws Meals—lunch or dinner (select teams) Hains Point loop in East Potomac Park TV/Videoplayer operation (6 hours) Daytime & nighttime lighting evaluations (select teams) Timely response to email
Tuesday, October 1	Evaluation: Engineering Panel tours: Design Presentation & Simulation Newsletter & contest diary: Graphics & Communication Engineering Design Panel tours homes to evaluate consumer appeal and innovation in contests* Monitored Contests: The Comfort Zone (24 hour continuous, temperature 69°–78°F) Refrigeration, Hot Water, Energy Balance (all 24 hour continuous) Lighting (8 a.m. – 10 p.m.) Home Business (required operation 9 a.m. – 5 p.m.) Getting Around (9 a.m. – 7 p.m.)	Dishwashing Laundry Hot water draws Meals (select teams) Hains Point loop in East Potomac Park TV/Videoplayer operation (6 hours) Daytime & nighttime lighting evaluations (select teams) Timely response to email
Wednesday, October 2	Evaluation: Newsletter & contest diary: Graphics & Communication Monitored Contests: The Comfort Zone (24 hour continuous, temperature 69°–78°F) At 8 a.m. Begin: Comfort Zone 24-hr. evaluation (temperature 70°–74°F) Refrigeration, Hot Water, Energy Balance (all 24 hour continuous) Lighting (8 a.m. – 10 p.m.) Home Business (required operation 9 a.m. – 5 p.m.) Getting Around (9 a.m. – 7 p.m.)	Dishwashing Hot water draws Meals (select teams) Grocery store run Pantry delivery Hains Point loop in East Potomac Park TV/Videoplayer operation (6 hours) Daytime & nighttime lighting evaluations (select teams) Timely response to email
Thursday, October 3	Evaluation: Newsletter & contest diary: Graphics & Communication Monitored Contests: The Comfort Zone (24 hour continuous, temperature 69°–78°F) At 8 a.m. End: Comfort Zone 24-hr. evaluation (temperature 70°–74°F) Refrigeration, Hot Water, Energy Balance (all 24 hour continuous) Lighting (8 a.m. – 10 p.m.) Home Business (required operation 9 a.m. – 5 p.m.) Getting Around (9 a.m. – 7 p.m.)	Dishwashing Hot water draws Meals (select teams) Hains Point loop in East Potomac Park TV/Videoplayer operation (6 hours) Daytime & nighttime lighting evaluations (select teams) Timely response to email
Friday, October 4	Evaluation: Newsletter & contest diary: Graphics & Communication Monitored Contests: The Comfort Zone (continuous until 5 p.m., temperature 69°–78°F) Refrigeration, Hot Water, Energy Balance (all continuous until 5 p.m.) Lighting (8 a.m. – 10 p.m.) Home Business (required operation 9 a.m. – 5 p.m.) Getting Around (9 a.m. – 5 p.m.) 5 p.m. End: All contests except contest 10 (see Saturday)	Dishwashing Laundry Hot water draws Meals—breakfast or lunch (select teams) Hains Point loop in East Potomac Park TV/Videoplayer operation (6 hours) Daytime & nighttime lighting evaluations (select teams) Timely response to email
Saturday, October 5	Monitored Contests: Getting Around (10 a.m. – noon)	National Mall loop
Wednesday, October 9 — Teams must be off the National Mall by 5 p.m.		

* The Comfort Zone, Refrigeration, Hot Water, Lighting, & Home Business

Capturing the Moment in Austin: The Dream Takes Shape

The University of Texas at Austin Solar Decathlon team held an open house on April 26th. We presented our design to the school and invited guests, who were very enthusiastic. This event signified the transition from design phase to building phase. The next day our team went out to the building site and worked to prepare the construction area, to erect shade structures, and to build a storage shed for our supplies.

Finally our dreams are becoming reality! After two semesters of designing, arguing, proposing, and computer testing through our student-led seminar, summer construction of the house has begun. Our team reunited on June 5th for a summer studio, in which we spent four “official” hours per day building, and as many extra “unofficial” hours as we could spare. The daily 95-degree heat hasn’t slowed us down, but the recent torrential rains sure have. Despite the fact that our construction site is near Austin’s city limits at the Center for Maximum Potential Building Systems, the media came to visit as we laid the foundation. The Center will be the permanent site for our house after the competition is over.

The steel frame of our building proved to be a construction challenge. We redesigned the details nearly every day. But as time passed, we got closer and closer to something that works. We are using solar power for much of the construction process. It has been exciting to watch our donations come in: building materials, appliances, and Home Depot tools. Our fundraising attempts actually succeeded! Yet for many critical donated items, it is coming down to the wire. Tensions mount as we wait for deliveries, but we’re still in good spirits.

In addition to the local media stopping in now and then, we frequently have visits from our team videographer, Jody Horton, who is capturing footage for our documentary. Communication is really one of the most exciting aspects of the project for us. We are putting a lot of energy into telling the story of our building and all of the ideas it encompasses. In the end, we will have two products: the solar house and the educational record of its conception, testing, and realization. We believe that this story needs to be heard and that it is a wonderful byproduct of the Solar Decathlon.



University of Texas at Austin team

Jennifer Tullis, University of Texas at Austin

Special Events — September–October 2002						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
22	23	24	25 5 p.m. Sponsor Tour 6:30 p.m. Reception (invitation only)	26 10 a.m. Opening Ceremonies	27 9 a.m. – 5 p.m. Team VIP Tours	28 9 a.m. – 5 p.m. Public Tours Team VIP Tours
29 9 a.m. – 5 p.m. Public Tours Team VIP Tours	30 Tours at Teams’ Option	1 Tours at Teams’ Option	2 Tours at Teams’ Option	3 Tours at Teams’ Option	4 10 a.m. – 5 p.m. School and Technology Day 3 p.m. – 5 p.m. Team VIP Tours	5 9 a.m. – 5 p.m. Public Tours Noon, Closing Ceremonies— Winner Announced 6 p.m. Victory Reception (invitation only)
6 9 a.m. – 5 p.m. Public Tours Team VIP Tours	7	8	9	10	11	12

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