

## **Solar Decathlon 2005 and Habitat for Humanity**

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### **ABSTRACT**

In September of 2002, 14 universities participated in the first Department of Energy (DOE) and National Renewable Energy Laboratory (NREL) sponsored Solar Decathlon contest. In this contest university students designed and built sustainable homes, transported the homes to the National Mall in Washington, D.C., participated in 10 events, and then dismantled the homes and returned to their respective campuses. The contest drew an estimated 100,000 people from the surrounding D.C. area. This paper reports on the collaboration of the UMass Dartmouth team with Habitat for Humanity as it prepares to enter the 2005 Solar Decathlon. We will discuss our strategy building two homes for the price of one. The first home is designed and built on our campus and is the product of two courses taught jointly by an engineer and a licensed architect (first semester) and an engineer and building code specialists (second semester). The audience for both courses is undergraduate art majors and engineering majors. The deliverable for the first course is an architectural parti while the deliverable for the second course is a set of code-compliant construction documents. A parti is the main concept or idea that guides and expresses the character, organizational philosophy, and the appearance of the design. This first house features modern sustainable building materials and practices. On completion, the house stays local and is delivered to the Fall River, Massachusetts, chapter of Habitat for Humanity site where it is attached to a three-bedroom portion. Rather than transport this home 500 miles to D.C. and back, the team decided to build a second home for the competition. This second home is to be built in D.C. during the summer prior to the contest, at the DC Habitat for Humanity site, transported to the National Mall for the contest, and then donated to D.C. Habitat for Humanity. The second home also stays local. The UMass Dartmouth collaboration with Habitat for Humanity demonstrates a commitment to increasing the public's awareness of the benefits of solar energy. This project integrates "green" sustainable thinking into our coursework and provides an opportunity for positive public relations. We have the opportunity to contribute to the most needy in our regional community by having the home used by Habitat for Humanity. This project has the broad support from team members both within and outside the University community. The members include the Director of Facilities at UMass Dartmouth, a Licensed General Contractor, the UMass Dartmouth Resident Engineer, a CAD Consultant, a Licensed Architect, the Associate Dean of the College of Engineering, a Licensed Professional Engineer, a Community Service Staff Associate, students from the IMPULSE program, the President of Habitat for Humanity Fall River, and the Executive Director of Habitat for Humanity D.C. We will also report on our fundraising progress, community outreach results, team building activities, and multi-disciplinary teaching experiences.

