



# SOLAR DECATHLON EUROPE





## WHAT IS THE SOLAR DECATHLON?

The SOLAR DECATHLON Competition is organized by the U.S. Department of Energy for universities from all over the world to design and build a self-sufficient home, using solar energy as the only energy source and equipped with technologies that permit maximum energy efficiency.

The final phase consists of assembling the houses in the National Mall in Washington D.C., where the “Solar Village” is located. The houses are then open to the public, while undergoing the ten contests for which the competition is named – Decathlon, to demonstrate then their self-sufficiency and energetic efficiency.

### Past decathlons

The first of these prestigious competitions took place in 2002, the second in 2005 the third in 2007, and the SOLAR DECATHLON 2009 is currently underway, with the participation of important universities from Unites States of America, Canada and Europe.

The Universidad Politécnica de Madrid participated in the 2005 competition for the first time with its “Magic Box” house, and again in 2007 with “Casa Solar”, representing Spain. Europe was also represented by the University of Darmstadt.

All of the competitions have had a great media attention in addition to the 50.000 visitors to the National Mall during the Competition.



www.solardecathlon.org

### Purposes

The SOLAR DECATHLON Competition has four main purposes:

01. To educate the student participants on the many benefits of renewable energy and energy efficiency in building, and to challenge the students to think in new ways about energy and how it impacts on our everyday lives.



02. To raise awareness among the general public on renewable energy and energy efficiency and what technologies are available today to help them reduce their energy consumption. The SOLAR DECATHLON is open to the public on certain days and demonstrations, such as a living laboratory where visitors can see these technologies in action also take place. The event serves to encourage all of us to act responsibly when making energy choices.

03. To help get solar energy technologies to the marketplace faster, taking advantage of the interest of the students in research and development into energy efficiency and energy production technologies, all this integrated into architecturally attractive to houses.

04. To demonstrate that it is possible to build highly efficient industrialized homes that are sustainable without abandoning comfort, aesthetics and the pleasure of living in them.

## **SOLAR DECATHLON EUROPE**

### **Universidad Politécnica de Madrid - UPM**

The Universidad Politécnica de Madrid built two prototypes of the house which they presented at the SOLAR DECATHLON 2007, the “Casa Solar”, which allowed, besides its participation in the aforementioned contest, to participate in other public events, among them the Salón Inmobiliario de Madrid (The Real Estate Fair in Madrid) in April, and in “España Solar (Solar Spain)” in June 2007.

In the latter event, organized by the Spanish Government, the house was visited by the President of the Government, Jose Luis Rodriguez Zapatero, as did the Ministers of both Industry and the Environment, not to mention the numerous politicians and representatives from private and public institutions. They, together with the general public, were able to see the functioning of the house as well as numerous other research projects associated with it.

One of the “Casa Solar” prototypes continues to participate in events of social awareness throughout Spain, and another one, is an experimental prototype, a platform for the development of fourteen research projects.





It is very important to outline the positive results that any University can obtain in return of participating in the SOLAR DECATHLON competition. Besides the R&D that the project encourages and the wealth of knowledge accumulated, it has attracted wide media coverage, as well as a considerable political and social impact, which has reinforced public awareness of the need for the responsible use of energy, the use of renewable energies, and the responsibility of everybody to create a more sustainable world.

The Universidad Politécnica de Madrid is one of the SOLAR DECATHLON EUROPE organizers and will not participate in the competition.

### **Memorandum of Understanding (M.O.U)**

The idea of a SOLAR DECATHLON EUROPE was launched while the UPM team was in Washington for the American competition in 2007. After the negotiations carried out by the Universidad Politécnica de Madrid and the Economic and Commercial Office of the Spanish Embassy and senior representatives from the Department of Energy of the United States of America, it was proposed to sign a Memorandum of Understanding between the Government of the United States and the Government of Spain. The agreement commits the Government of Spain to organizing, together with the support of the Government of the United States, a SOLAR DECATHLON EUROPE competition, initially for 2010 and 2012, alternating with the American competitions in 2009, 2011 and 2013.



www.solardecathlon.org

This was made possible because the Government of Spain is actively interested in promoting these issues, and wishes to take on the leadership of a large-scale international project with wide-ranging technical, scientific, social, and economic repercussions.

The Memorandum was signed in 2007 October 18th beside the “Casa Solar”, during the last competition, by Mr. Alexander A. Karsner, Secretary General of Energy Efficiency and Renewable Energy at the Department of Energy on behalf of the American Government, and Mr. Fernando Magro Fernández, Sub-secretary of Housing of the Spanish Ministry of Housing.



## OBJECTIVES OF THE SOLAR DECATHLON EUROPE

The SOLAR DECATHLON EUROPE, as the original event, will be an international competition for universities from all over the world; the aim is to advance knowledge on industrialized and sustainable homes, with a particular emphasis on high efficiency and energy self-sufficiency.

The final phase of the Competition will be held in Madrid in Spring 2010, and will consist of the assembly and exhibition of the houses designed and built by the different participating universities. The houses will undergo 10 contests, hence Decathlon, as in the Olympic competition.



www.solardecathlon.org

A series of objectives to be achieved will also be defined as:

01. To generate knowledge on the industrialization and sustainability of the homes to bring about the suitable scientific benefits as well as the dissemination of the knowledge.
02. To make both students and citizens aware of the environmental and sustainability issues, especially in the responsible use of energy and natural resources, promoting the use of the renewable energies.
03. To maximize the publicity of the event by taking advantage of the competition's characteristics and potential to achieve the maximum media coverage and social diffusion.

Because of its international character, the event will have two official languages, English and Spanish, all documentation, communication and diffusion will be made in one of the them, and some activities in both.

All official communications sent by the organization will be made in both languages.



## PRELIMINARY PLANNING OF THE PROJECT

The SOLAR DECATHLON EUROPE 2010 will take place between September 2008 and June 2010, the final phase of the Competition will be held in Madrid, in May - June, 2010, definitive dates to be confirmed.

The following relevant milestones for the universities participating in the project planning have been defined as:

01. Receipt of the Proposals from the participating universities: by 08 September 2008
02. Notification of the universities selected to participate in the competition: by 30 September 2008
03. Delivery of the Design Development Drawing and Specifications: January 2009
04. Delivery of the multimedia presentation and the Scale Architectural Model: April 2009
05. Pre-event Workshop in Madrid, Spain: May 2009
06. Delivery of the Construction Documents: September 2009
07. Delivery of the Updated Construction Documents: February 2010
08. Site Operation Plan to assembly phase: March 2010
09. Competition: May - June/2010 (definitive dates to be confirmed)

## CONTESTS AND SCORING

The multiple contests of the Competition are oriented towards obtaining points progressively up to an estimated maximum of 1,000 points.

All of the evaluation criteria of each of the contests will be subject to a detailed description in the Rules of the Competition. Some contests are scored by measuring performance; these will be "objective" measures. Others require the successful completion of tasks. Some contests are scored by jurors who are experts; these are "subjective" scores. The final results will be a combination of these methods.

The scores are designed so that 50% of the points are related with quantitative and objective criteria, and 50% respond to qualitative and subjective criteria.





Ten evaluation concepts have been designed for the contests and the assigning of points drawn up:

area	concepts	points
<b>Architecture</b>	1. Architecture	130
	2. Engineering and construction	80
<b>Solar</b>	3. Solar systems	80
	4. Electrical energy balance	130
<b>Comfort</b>	5. Comfort conditions	130
	6. Appliances	80
<b>Social and economic</b>	7. Communications and social awareness	80
	8. Industrialization and market viability	80
<b>Strategic</b>	9. Innovation	80
	10. Sustainability	130
	<b>Total of points</b>	<b>1.000</b>





## PARTICIPATION

### Universities

The competition is an excellent opportunity to generate and diffuse knowledge, with consequent prestige to the participating Universities.

Participation will permit the Universities to integrate and produce knowledge on sustainable construction demanded by society with the comfort and quality required. Socially, the competition highlights the possibilities for dissemination and awareness of important aspects for the environment, such as the responsible use of energy and renewable energy.

To facilitate the participation of the Universities, the Organization will provide economic support, estimated in **100.000 euros**, to every participant.

### Students

The SOLAR DECATHLON EUROPE 2010 Competition gives the students a single opportunity to learn; to convert theory to practice in the field through unequalled testing.

Students will be challenged to use their dynamism and capacity for innovation to design and build a self-sufficient house powered by the sun, and achieve a balance between the architectonic and engineering aspects.

The students will have to look into the socio-economic aspects of the proposal. Innovation as a way of improving the conditions for sustainability also features heavily in the competition.



www.solardecathlon.org

## Invitation

The Ministry of Housing of the Spanish Government together with the U.S. Department of Energy invite all European Technical Universities, as well as those from around the world, to take the initiative by participating in the SOLAR DECATHLON EUROPE 2010 Competition. Those Universities wishing to participate may ask for further information writing to the following address [sde.contact@sdeurope.org](mailto:sde.contact@sdeurope.org).

An application form will be sent out with information on the proposals and the criteria for the selection of the universities.

Other information about the competition may be found at [www.sdeurope.org](http://www.sdeurope.org).

To find out more about the Competition held in the United States, take a look at [www.solardecathlon.org](http://www.solardecathlon.org) •