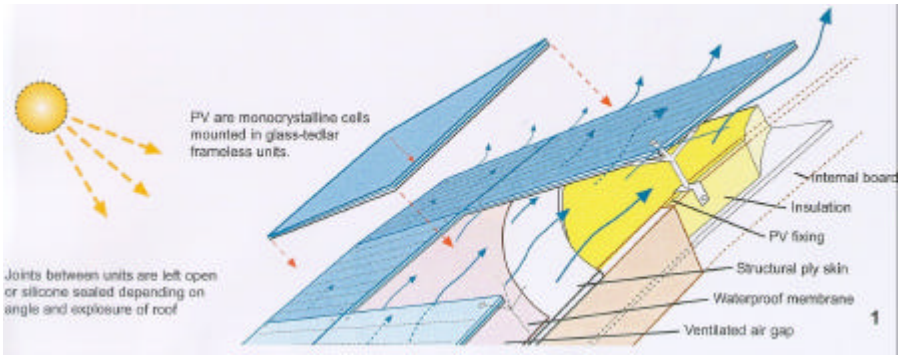
Press Release
Design Competition
Photovoltaic Products for the Built Environment

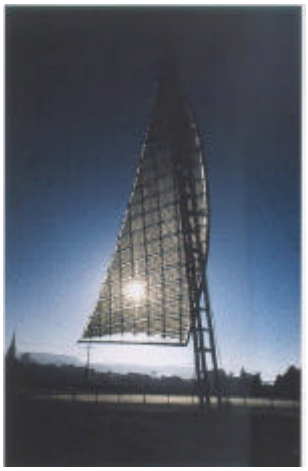
An international competition to design PV products for use in the built environment has just concluded. The competition demonstrated the wide range of approaches possible for integrating photovoltaics in our built environment. Entries were received from architects, engineers, designers and students from 10 countries demonstrating a variety of cost-effective, practical and elegant designs. The prize giving ceremony was held at the 16th European PV conference held in Glasgow, 1-5 May 2000 where a total of 7000 Euro was awarded to the various prize winners.



Robert Webb of Robert Webb Associates, UK, won 1500 Euro as the **overall competition winner** for his design for PV panels as a ventilated rainscreen system over a lightweight stressed-skin timber construction. The judges admired the overall concept for the building and its consideration for environmental and passive solar issues in addition to electrical generation.

The reasoning behind the competition was the belief that photovoltaics have the potential to supply a significant part of our electricity requirements and will become increasingly visible in the built environment in the future. As a quiet, clean and low maintenance renewable energy generator PV can be easily embedded into the urban fabric in a way that avoids the unnecessary use of undeveloped land. The competition therefore aimed to encourage the design of well-integrated and well-designed PV products for the Built Environment. The underlying principle being that integrating PV in the built environment should enhance that environment, rather than detract from it.

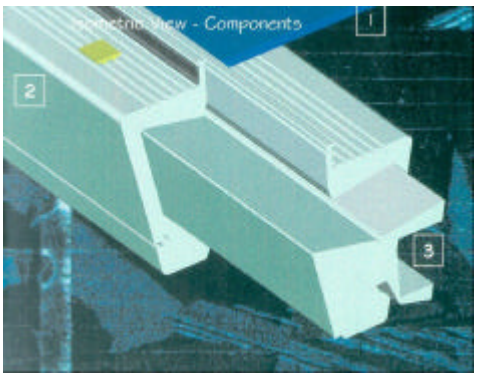
Products submitted to the competition had to either incorporate photovoltaics or provide a method of incorporating photovoltaics into a structure in the built environment. This concept had to form a significant part of the design alongside the issues of enhancing the built environment whilst demonstrating that PV can contribute to electricity demands and CO_2 reduction (in this context). For the purpose of this competition the built environment referred to buildings and other fixed structures that one would expect to find in a built environment.



A team from Halle 58 Architekten, in Switzerland won the **exhibition prize** of 1000 Euro for their superbly presented design of a Solarsail. This prize was awarded on the basis of the number of votes given to the entry by visitors to the exhibition of short-listed designs held at the 16th European PV conference held in Glasgow, 1-5 May 2000. All the short listed entries had been exhibited at the conference and visitors to the exhibition were invited to vote on their favourite design.

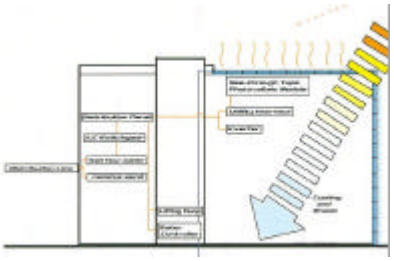
Winning designs were also announced for the four categories: roofing products, façade products, other building products and recently released products.

Roofing Products

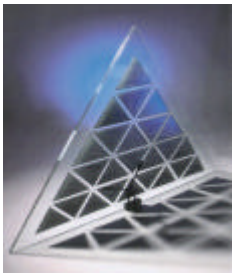


Andrew Weight from Reading University, UK was the **overall student winner** and the winner of the roofing products category. He was awarded 1500 Euro for his PhotoFIT design. This design for mounting PV modules to provide a roof or façade covering used an innovative profile system as the module frame. It aimed to minimise costs by simplifying installation requirements in terms of components, complexity and time. The judges considered it to be a well-presented and well thought through entry, giving good consideration to the integration of cabling and avoiding the problem of the frame shadowing the module.

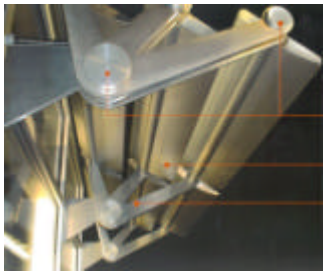
Façade Products



The façades category prize of 1500 Euro was shared between Marcel Ferrier, an architect from Switzerland and a team of three students (S Tomatsuri, K Kondo and T Ohashi) from Hosei University, Japan. Marcel's design was for a PV façade on a circular building that addressed the issue of the sun's movement in an innovative manner. The Japanese design (right) was for building with a PV roof and façade with water flowing over the module surfaces. The combination of PV and water-cooling systems aimed to keep the building and PV installation cool. A design for Glass-glass triangular PV modules (left) by Rogelio Leal Cueva and Tomas Markvart of the University of Southampton, UK was commended as an attractive design, well thought through and well presented.



Other Building Products



A practical and sturdy design for a PV Sunshade system (left) that both optimised solar gain and avoided self-shading won 1500 Euro for the other building products category. D Hewitt and R Braunstein of Kawneer Co. in the USA submitted the design. M Margaroli an architect from the UK was commended for his elegant SHADOPHOTOVOLTAIC design, which is a refinement in PV louver systems, although the judges expressed some concern regarding the system's robustness.

Recently Released Products

The recently released products short listed were all roofing products, and included systems to fit onto sloped roofs, PV roof tile systems and systems for mounting PV modules on flat roofs. They were all well developed designs providing cost effective and practical methods of mounting PV on a wide range of roof types. A team from Econergy International in the Netherlands was the category winner with their INTERSOLE design that allows a range of module types and sizes to be integrated into any type of tiled roof in a weatherproof manner. The judges commented that this was a practical system likely to be good value for money.

Background Information

The design competition PV Products for the Built Environment was an international competition intended to generate ideas and proposals for Photovoltaics in the Built Environment. It was organised by Halcrow Gilbert, supported by the UK Department of Trade and Industry (DTI), under the aegis of Task VII – Photovoltaics in the Built Environment, of the International Energy Agency (IEA) Photovoltaic Power Systems (PVPS) Programme.

Entries to the competition were grouped into the following categories:

- Roofing products
- Façades
- Other building products, e.g. shading devices, building entrances
- PV building products recently released onto the market. Eligible products for this category were products that had been released since 1 September 1998.

Excluded from the competition were:

- Products for ground mounted PV arrays used simply as power stations,
- Vehicles of any kind (cars, bicycles, etc.).
- Portable products of any kind.

Following the competition announcement in October 1999 and the deadline submission date of 29th February 2000, there were two rounds of judging. The preliminary judging decided a shortlist of entries that were then judged by an expert panel who met during the 16th European PV conference held in Glasgow, May 2000.

The final judging panel was made up of:

- David Lloyd Jones of Studio E Architects, UK: Chairman
- John Curran of TXU, UK.
- Duncan Jackson of Nicholas Grimshaw & Partners, UK
- Tjerk Reijenga of BEAR Architechten, NL.
- Michael Colijn of Shell Solar Energy, NL.
- Steven Strong of Solar Design Associates Inc., USA.

The judging criteria for assessing the entries were as follows:

MARKS	JUDGING CRITERIA
10	▪ Visually attractive.
10	▪ Integration into the built environment. The product should fit well in the context for which it is intended.
10	▪ Functional – the product should meet whatever function the type of product is expected to provide.
10	▪ There must be an identifiable market for the product (it is not the size of the market that counts).
10	▪ The product should be innovative in some respect. This may involve innovative components, the assembly of the components or the application.
5	▪ The product should be reasonably simple to install, maintain and operate, where applicable.
5	▪ The performance/efficiency of the product is important. Thermal outputs can be considered as well as electrical outputs where appropriate. Demonstrate issues such as ventilation and shading have been considered to maximise output from the chosen PV technology.
5	▪ Practical and cost effective manufacturing method.
5	▪ Environmental issues. Demonstrate that environmental issues have been considered, including minimising: the energy payback of the system and the use of materials harmful to the environment.
5	▪ Flexibility/versatility of the design (able to use in various locations/orientations/markets, etc.)

The main competition sponsors were Shell International Renewables Ltd and TXU Europe Ltd. Sponsorship for individual categories was provided by Plus Wall Ltd (facades) and Colt International Ltd (roof products).

- Shell International Renewables Ltd is a leading manufacturer of multicrystalline silicon solar cells and solar modules, and a supplier of solar power systems. Production capacity is currently located in the Netherlands and in Japan through a joint venture with Siemens.

- TXU Europe (formerly Eastern Generation) is one of the leading integrated energy groups in the UK and is the fourth largest UK generator with around 7000MW of generating capacity – around 10% of the share of the market in England and Wales.

- Plus Wall Ltd is a British owned and managed Company specialising in the design, manufacture and installation of high quality curtain walling, cladding and associated areas. Plus Wall sponsored the facades prize in the competition.

- The Colt Group is multinational, with wholly owned subsidiaries, distributors, agents, joint ventures and licensees spanning the globe. The Group specialises in climate control in buildings. The Group has an extensive range of products including solar products, backed up by system design expertise, technical know-how, and service. Colt International Ltd sponsored the roofing products prize in the competition.

The International Energy Agency (IEA), is an autonomous body within the framework of the Organisation for Economic Co-operation and Development (OECD), which carries out a comprehensive programme of energy co-operation among its 23 member countries. The IEA Photovoltaic Power Systems Programme is one of the collaborative R&D agreements established within the IEA. Since 1993 the 20 countries participating in the programme have been conducting a variety of joint projects in the applications of photovoltaic conversion of solar energy into electricity. The Programme, whose mission is "to enhance the international collaboration efforts through which solar energy becomes a significant renewable energy option in the near future", is divided into nine tasks. Task VII of the Programme is concerned with Photovoltaic Power Systems in the Built Environment. The objective of the Task is to enhance the architectural quality, the technical quality and the economic viability of PV systems in the built environment, and to assess and remove non-technical barriers for their introduction as an energy significant option. The Task commenced on 1st January 1997 with 15 member countries participating.

For further information on the competition or additional pictures contact Angela McKenna at Halcrow Gilbert, Burderop Park, Swindon, Wiltshire, SN4 0QD, UK. Tel: +44 1793 816 498, Fax: +44 1793 815 020, e-mail mckennaam@halcrow.com or see the Task 7 web site www.task7.org.