Solar Cell Seating, St Peter’s Campus, University of Sunderland

Abstract

Design and manufacture public seating illuminated by LEDs which are powered by photovoltaic cells (PV cells) incorporated into the seats themselves. Funded by a Technology Strategy Board Grant.

Main Text

The purpose of the research grant was to produce a feasibility study and create a prototype seat predominantly using sustainable lighting technology (LED lighting and PV cells) and which will be made in a material such as recycled laminated glass, and Decoran, a recycled glass/ceramic material, developed in Germany and now primarily used for cladding the facades of buildings and with a proven track record of durability in the public realm.

The seat design was 1.2 m high x 2m long and the power supplied by 31 solar cells producing 18 volts stored in 4 batteries sited in seat unit. The seat unit is illuminated by LED light strips installed beneath a textured laminated glass seat top.

Sensor switch the lights on at dusk, this can be adjusted by controller housed in seat unit. Enough power can be stored to light LEDs for up to 12 hours per evening in summer and 3 hours per evening in winter.

Elements of note regarding the design include the use of sustainable materials in the seating and the use of cutting edge technologies.

The simplicity of design, the independent unit with adjustable legs, means that it can be sited anywhere on flat surface, making it a versatile and eminently user friendly solution to the public seating needs of town planners and urban designers in the 21st century.

Funded by: Technology Strategy Board Award

Project cost: £15,000 (A further £5,000 to be found by artist)

Subcontractors: James Ritchie Architect

Architectural Metalworkers Ltd. Newcastle

Sinopuren Energy Group Ltd. Shenzhen, China.

Winsund, Co. Durham

Completion date: 2009

Selection Process: Funding secured through application with proposal to Technology Strategy Board