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UK SDA Winter

2008/09



The UK Sustainable Development Association has been formed to promote the need to make better use of the earth's resources, to avoid their depletion and the changes to the climate that results.

Towards Zero Carbon

... the UK Sustainable Development Association has joined the debate designed to accelerate the take-up of environmental technologies and techniques to produce zero carbon homes ...

One of the harshest winters for a number of years provides a timely reminder of the urgent need to improve the environmental performance of the UK's housing stock, and its non-domestic buildings.

In responding to the Government's consultation on the best way to define "zero carbon", the UK-SDA took the pragmatic view that the most urgent requirement is to work with the devel-

opment industry to move forward the carbon and water saving requirements of Building Regulations in relation to the inherent qualities of the main shell, and the energy and water related fittings and appliances.

Under Building Regulations, all new structures should also be required to capture and make best use of available natural resources such as light, wind, ground-sources, hydro and rainwater.



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yours to award ...

The UK-SDA special merit award scheme, announced in the Autumn Newsletter, has got off to a flying start with four of the awards being presented in the lead up to Christmas for a range of local qualifying new buildings.

The Awards are made on the recommendations of UK-SDA members and are designed to recognise excellence in sustainable design and construction, together with the contribution that member-companies are making to this.

... defining zero carbon

... continued from page-1



This relatively straightforward approach to reducing the carbon footprint of future homes and non-domestic buildings contrasts starkly with the Governments 112-page consultation (see www.communities.gov.uk) on the subject aimed at refining the definition of “zero carbon” in the context for the Code for Sustainable Homes.

Quite apart from its excessive length and complexity, this consultation is a worrying example of the danger that over-complication will potentially get in the way of making progress in reducing carbon footprint at the rate that is required.

regulating progress ...

Regulation of the mainstream development industry is achieved through the Planning processes and Building Regulations which essentially prescribe what can be built, where it can be built, and how it must be built; extending these arrangements to prescribe how unavoidable power requirements are met may not be quite as sensible.

Ensuring, within the limits of financial viability, that all new structures reduce their reliance on non-renewable resources as much and as soon as possible is of paramount importance and can only be delivered through Building Regulations; voluntary Codes, even if incentivised, cannot impact on the scale required

Building Regulations must therefore be used

to drive up the environmental performance of basic structures by looking for solar gain alignment and well-insulated foundations, roof and walls; Building Regulation requirements for “U-values” of around 0.25-Wm²K, 0.12 and 0.15 respectively in this respect, together with air-tightness and air management requirements, should therefore speedily become the norm.

natural resources ...

Building Regulations should also specify the extent to which new developments should exploit the natural energy sources available at the site, namely solar heating, solar PV, rainwater harvesting and ground source cooling and heating. These are

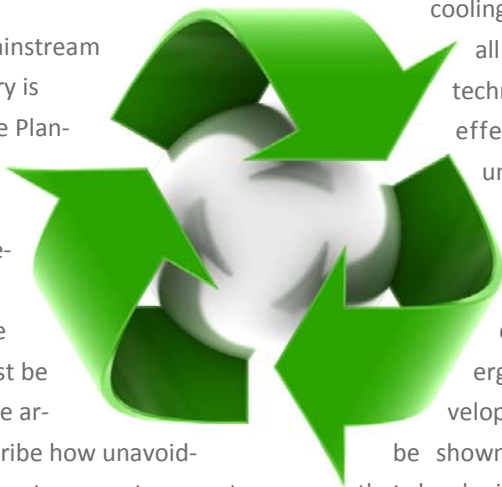
all relatively mainstream technologies whose cost-effectiveness is well-understood.

Less understood, however, is how best to generate any balance of energy still required by a development. Only when it can

be shown, all things considered, that local site-specific generation is more carbon efficient and cost-efficient than centralised production and distribution should it become mandatory.

bearing in mind costs ...

Meanwhile, the question of costs and cost-effectiveness also need to be taken fully into account, as new buildings need to remain affordable; they are also likely to be a significant driver of the cost of the existing built environment.



UK-SDA AWARD WINNING CASE STUDY

Conkers Youth Hostel is a new build environmentally friendly facility set in the Heart of the National Forest in Leicestershire

The concept of the building is to give children from all over the UK access to the developing National Forest, and to allow them to gain an appreciation of the rural environment.

The building is constructed from local sustainable materials wherever possible, including its timber frame and cladding. The building also blends very well into the natural environment, whilst offering modern facilities..

Funding for the hostel depended on minimising its carbon emissions, with passive energy principles playing a big part in its design. Overheating is combated by the overall thermal mass and façade engineering of the structure.

To complement these passive measures, carefully integrated renewable technologies were included, such as:

- Woodchip boilers
- Solar heating
- Rainwater harvesting

UK Technology Strategy Board - promoting innovation



The TSB (see www.innovateuk.org) promotes innovation by spreading knowledge, understanding policy, and spotting and supporting new opportunities through R&D competitions...

The Technology Strategy Board (TSB) opened three new competitions for funding in January, offering opportunities for the development of innovative products and services.

Areas covered include low carbon vehicle systems and oil and gas recovery, with a deadline for expressions of interest being 26th February.

In March, further competitions will focus on some topics of particular interest to UK-SDA members such as fuel cells and hydrogen technologies, and the retrofitting of

buildings for improved environmental performance.

The TSB website provides a comprehensive listing of ongoing R&D competitions, associated deadlines, and arrangements for entry. Of interest to UK-SDA members are the special arrangements in place for small businesses.

Full details can be found at www.innovateuk.org, including downloads of the presentation slides used at the information days that are run periodically to explain how the competitions work.



Why not brew your own? ...

The Nottinghamshire village of Maplebeck illustrates how local communities can generate their own power supplies, and reduce their utility bills at the same time ...

Planning underway at the Nottinghamshire village of Maplebeck shows how a village can develop its own power supplies, for which they will receive payment for the power consumed.

A settlement of only 49 houses, Maplebeck village is currently exploring the installation of its own solar and wind powered energy generation, in a communal owned scheme organised by Energy4All.

The electricity generated will be fed direct into the village supply, backed-up by the normal grid when demand requires; energy excess to demand will be sold to the grid at

the normal purchase price for power, plus the feed-in tariff

Power produced in this way has a negative cost under current funding for ROCs



Pictured - LGC Skyrota vertical axis wind turbine

(renewable obligation certificates), LECs (conformity of green power certificates), and Carbon Credits, compared to the very positive cost of energy purchased from the grid; it also provides opportunities to sell back into the grid at the currently proposed tariff of 4p per kwh.

Practically, villagers would continue to receive utility bills based on their personal consumption; these will be raised by the cooperative running the scheme. However, the tariff would be based upon a combination of the negative production cost noted above and the standard grid tariff, with any surpluses being repayable as dividends.

Featured technology - home insulation ...



Cavity wall and loft insulation typically save around £300 per year on energy bills and each reduce the carbon footprint of a house by around one-third - two very simple ways to make a property more energy efficient ...

basic principles ...

Most modern homes are generally constructed with two masonry walls, separated by an air-gap. Filling this cavity with insulating material reduces the heat loss that takes place across this gap.

Similarly, approximately one-third of all heat loss from a property can be through an uninsulated loft, losses which can be reduced by having the correct depth of loft insulation.

benefits ...

Insulating the cavity wall air-gap leads to a reduction of about £180 per year in the fuel bills for a typical home; it also lowers the carbon emissions from the property by around

800-kgs per year and improves the energy rating on the Energy Performance Certificate for the property.



A properly insulated loft will also reduce the carbon footprint of a typical house by up to one-tonne per year

whilst producing savings on heating bills of between £60 and £205. As with cavity wall insulation, loft insulation also improves the energy rating of the property.

practical implications ...

Cavity wall and loft insulation is extremely simple and straightforward to retrofit to existing properties, taking less than one day to complete a typical three bedroom semi-detached house.

Both procedures, which can be undertaken separately, involve a bare minimum of disruption to the household routine, and can often be subsidised by local energy-saving schemes.

**For more information visit
www.uk-sda.org/Downloads.html**

Footnote ...

Climate change secretary Ed Milliband and communities and local government secretary Hazel Blears are due to unveil a scheme under which seven million homes could receive an energy efficiency refit in a bid to cut carbon emis-

sions and reduce fuel bills.

The Government's Committee on Climate Change has highlighted the importance of improving the energy efficiency of existing homes, thought to be respon-

sible for a quarter of all UK emissions.

The anticipated proposals from Government will address this issue with the aim being to reduce residential emissions by around 20% by the year 2020.