eco buildings Newsletter

December 2006
Issue 3

Eco-buildings is an energy demonstration initiative of the European Commission (DG TREN) within the Sixth Framework Programme

This third newsletter comes at the midway stage of the four Eco-buildings projects currently supported by the European Commission: BRITA in PuBs, Demohouse, Eco-Culture and SARA. At this stage the most of the buildings are in construction so the news focuses on progress, parallel activities and the initial monitoring results from completed buildings. The newsletter also comes at a time when interest in energy performance in buildings is high for reasons that include rising energy prices, recognition of Europe's immediate energy and environmental challenges and the implementation of the European Energy Performance in Buildings Directive (EPBD). Read on and you will find information about sources of information and future events

Contents

Building up the community

There is now a wealth of information available on the internet to help build a sustainable energy future in Europe. Here is a list of just a few of the many sites that provide inspiration and support for Eco-builders and also produce regular newsletters that you can subscribe to.

Greenbuildings, Improved Energy Efficiency for Non-Residencial Buildings

The GreenBuilding Programme (GBP) aims at improving the energy efficiency and expanding the integration of renewable energies in non-residential buildings in Europe. The programme addresses owners of non-residential buildings to realise cost-effective measures which enhance the energy efficiency of their buildings in one or more technical disciplines. The pilot phase is a project supported by the European Commission's Intelligent Energy Europe Programme.

http://www.eu-greenbuilding.org/

IMPACT

IMPACT aims to support National actors with the implementation of the European Energy Performance in Buildings Directive and to contribute to the preparation of market actors for the introduction of energy labeling in 2006. Within the Impact project energy labeling will be tested in 6 National tests.

http://www.senternovem.nl/impact/

Sustainable Habitat Design Advisor

The website provides sustainable design advisory services with the specific objective to generate awareness and create a knowledge base of sustainable building design and its environmental benefits, and to assist building professionals to identify sustainable solutions to a design problem. The encyclopedia "Swikipedia" is an ever evolving storehouse of information, where everybody is requested to contribute his knowledge.

http://sustainable-buildings.org

Display Campaign

The European Display™ Campaign is a voluntary scheme designed by energy experts from 20 European towns and cities. It is aimed at encouraging local authorities to publicly display the energy and environmental performances of their public buildings using the same energy label that is used for household appliances. The idea is to engage citizens and make them more conscious of their energy consumption in order to reduce energy use and greenhouse gas emissions and achieve financial savings.

http://www.display-campaign.org/

Sustainable Energy Europe 2005-2008

A European Campaign to raise awareness and change the landscape of Energy.

http://www.sustenergy.org/tpl/page.cfm?pageName=partnerships_area

EPBD Buildings platform

The EPBD Buildings Platform is an information service for helping the implementation of the Buildings' Directive.

http://www.buildingsplatform.org/

Concerto

Towards an integrated community energy policy to improve the quality of citizens' lives.

http://www.concertoplus.eu

The Sustainable Building Association

The objective and aims of the Association of Environment Conscious Builders is to facilitate environmentally responsible practices within building.

http://www.aecb.net/index.php

EPBD Concerted Action

Promoting dialogue between the Members States to overcome difficulties and move towards a certain degree of harmonisation on a voluntary basis for the implementation of the European Directive on the Energy Performance of Buildings

http://www.epbd-ca.org/

ECO-Culture

All three ECO-Culture buildings - the Royal Danish Playhouse Theatre, the Oslo Opera House, and City Library of Amsterdam - are now standing in full height. More and more of the façade skin is being added every day, and more importantly, the energy systems are slowly starting to take shape.

The following images were taken in June 2006.

Playhouse

Opera

Library façade mock-up

Focusing on… humidity control in the Oslo Opera House

Securing the comfort of singers - and the musical instruments - in an energy efficient manner is a challenge.

The singers require humidification of the air in the cold period. Also the acoustics is improved with a high humidity in the air. The requirement is 30% RH (relative humidity).

In the winter period, a normal relative humidity is 10-15% indoors. The humidification of the air will therefore cause high energy consumption. VAV is used as the main strategy to limit the energy used for the humidification.

Many of the performance and rehearsal rooms have wood (oak) covered surfaces. Wood is known to accumulate humidity and will reduce humidity oscillation. In fact, wood is used to stabilize humidity in archives where constant humidity is important.

The type of humidification has also been an important topic for investigation.

There are two main critical points:

- Risk of microbiological contamination
- High energy use.

Due to the risk of microbiological contamination, a solution with steam humidification was chosen.

Ultrasonic water treatment uses only 1/10 of the energy of steam systems - if cooling is necessary.

If heating is required, the energy use is exactly the same. For the Norwegian climate, humidification is only required when there is a heating demand. The steam humidification system is therefore kept as a well proven solution.

During the late summer periods with high external humidity sometimes occur, but detailed analysis have proven that dehumidification is not necessary because it will only be required extremely rarely and then only for a short period.

A paper describing the investigations and its conclusion will be published in Spring 2007.

Events

European congress on energy-efficient building, 15/01/07 to 16/01/07, Munich, Germany

As part of Fair BAU 2007 Germany´s Federal Ministry of Transport, Building and Urban Affairs is putting on a European congress on the subject of energy-efficient building, on 15 and 16 January 2007. The congress will take a look at the regulatory environment and government support initiatives from a European perspective. Other emphases will be knowledge transfer and the latest technology.

http://www.bau-muenchen.de/id/58163/cubesig/2f185dea55bba43de7233ac58011dc0b

The EU Sustainable Energy Week, from 29/01/07 to 02/02/07, Brussels, Belgium

Under the umbrella of the Sustainable Energy Europe Campaign, the European Commission´s DG TREN, the European Institutions and major stakeholders concerned with sustainable energy are putting on the first EU Sustainable Energy Week. It will take place in Brussels, Belgium, and in other cities across Europe.

The aim of the EUSEW is to become the key annual reference point for sustainable energy issues in Europe. Events cover key topics that highlight the multi-sectoral nature of sustainable energy development and stress the need for everyone to work together.

http://www.eusew.eu/

European Energy Efficiency Conference, 01/03/07, Wels, Austria

Energy efficiency is a major

Continued page 3

Sara training material

Training materials designed to introduce sustainable energy concepts to the construction workers on site are now available.

sample training poster

The material can be used as self-explanatory on site posters or as the basis for developing an awareness raising session or more specific training workshops in themes related to the buildings. The material was trialled at the Barcelona site in June 2006 with the key workers from six installations contractors.

training participants

The full set of training posters is available at

http://www.sara-project.net/article.php3?id_article=3

Sara sites progress

At this half way stage, construction has finished in, Southampton and France, is due to finish by the end of 2006 in Spain, and is just starting on the other sites. Visit www.sara-project.net for regular updates including feedback on the construction experience and users.

User satisfaction

The two completed buildings have been well received by the users and are attracting attention and interest from the building sector for their energy and environmental features and performance. User satisfaction is being measured in the case of the University building and results will be published and disseminated in due course.

Bulletin n° 4

The fourth Sara bulletin was published in English and can be downloaded in various languages from the project web site.

This edition of the Bulletin contains an interview of John Brightwell, the Project Coordinator for Estates & Facilities at the University of Southampton, for a detailed look at the Southampton University building, as well as the customary project updates.

Sara in Slovenia

The University of Ljubljana, Faculty of Civil and Geodetic Engineering has been very active in making information about the SARA project available in Slovenia. A dedicated web site in Slovenian is available since March, available at http://kske.fgg.uni-lj.si/sara/

Events continued

trend: the sharp price increases for fossil energy sources with wide economic and social implications, the longer-term issues of security of supply as well as the climate protection commitments draw the attention of many decision makers to energy efficiency right now.

Conference in English, German, Italian and Spanish.

http://www.esv.or.at/esv/index.php?id=1659&L=1#2545

European Blowerdoor Symposium, 16/03/07, Kassel, Germany

The European BlowerDoor Symposium will focus on building air-tightness, thermography and ventilation of dwellings.

http://www.e-u-z.de/htm/body_ebds.htm

DECX Europe 2007, 09/05/07, Brussels, Belgium

The conference focuses on decentralised energy and cogeneration. This conference and exhibition will tackle the integration of the Europe's heat and electricity system with the aim of realising the enormous potential to grow the market whilst reducing CO2.

http://www.decx-europe.com/

ECEEE 2007 SUMMER STUDY, 04/06/07, La Colle sur Loup, France

The 8th eceee Summer Study will provide policy-makers, researchers, activists and professionals with insight into energy efficiency thoughts and practices. The collective experience embodied in this major European energy forum is a guidebook for all those who helping decision-makers to stop talking about saving energy – and just do it!

It will provide a working week of formal but straightforward sessions and informal meetings. Here, participants will exchange ideas in a relaxed but intellectual atmosphere, have lively discussions and come up with creative ideas. The heart of the Summer Study is the presentation and discussion of refereed papers in parallel panel sessions. Posters are presented in a session attended by all participants. Keynote speakers address plenary sessions and participants can organise informal sessions in the afternoons.

http://www.buildingsplatform.eu/epbd_publication/doc/eceee07_CallForPapers_p.pdf

CLIMA 2007,10/06/07, Helsinki, Finland

The 9th REHVA World Congress will offer scientists, industry, building owners, consultants, engineers, architects and policy-makers a platform for the exchange of scientific knowledge and technical solutions. The congress will cover all aspects of HVAC technology including building automation.

http://www.clima2007.org/portal/

PALENC 2007 - Low Energy Cooling and Advanced Ventilation Technologies in the 21st Century, 27/09/07, Crete Island, Greece

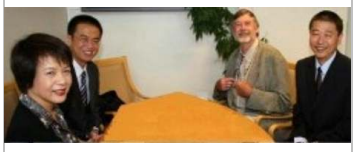
The joint 2nd Palenc and the 28th AIVC Conference aims to focus on the advanced low energy coling and ventilation technologies for buildings and also to assess the results achived almost two years after the application of the European Energy Performance of Buildings Directive

http://palenc2007.conferences.gr/

BRITA in PuBs welcomes Chinese visitors

Chinese visitors in Norway indicates her interest for BRITA-in-PuBs

The demonstration building Borgen Community Centre has been presented to delegates from the Tsinghua University in China.



Chinese delegation

The Chinese visitors are exploring possibilities for cooperation with European academics. Borgen Community Centre has shown, among other things, its energy saving features:

- Geothermal low temperature heat pump for both heating and cooling, using 44-150 m deep energy wells.
- Natural hybrid ventilation with inlet towers and underground culverts for fresh air supply. The ventilation is regulated by temperature and CO2 sensors in each room. Exhaust towers located over the central area in each base, are equipped with fans that are activated when natural driving forces are insufficient. Heat recovery systems supply heat to the preheating units in the culverts.
- To optimize the effect of daylight, all artificial lights are adjustable and regulated by light sensors. In addition, light is also regulated by motion sensors that will turn the light on when someone enters the room, if conditions so require.

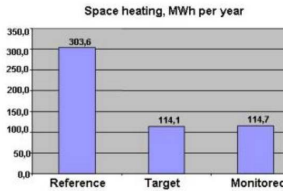
Lighting

- Development of a prototype of a new type of solar collector based on a glass construction and liquid heat medium. Preliminary studies of potential energy gain under different solar conditions and different locations indicate temperatures from approximately 22 to 43°C for the southern Norway region.
- ACC windows; wooden window with a sash that may be turned 180 degrees in the frame. The sealed glass unit has one solar absorbing glass and one glass with low emissive coating. This will give increased solar gains during the heating season with the solar absorbing glass facing inwards, and reduction of unwanted heat during the summer when the absorbing glass is facing outwards.
- Recent monitoring has shown that the total energy use is below the predicted 111 kWh/m2/a.

Monitoring proves the energy concept at Provehallen

After nearly one year of monitoring the results show that the actual yearly heating energy consumption is equal to the predicted amount.

From November 2005 to August 2006 the monitoring has been on-going at Provehallen in Copenhagen.



space heating, MWH/year

Provehallen is one of the demonstration buildings in the Brita-in-Pubs project and is an old rebuild factory building (see the updated building diary).

The yearly energy consumption for heating was predicted to be 114 080 kWh/m2.

Results so far show that the building performs to expectations as the monitoring results show an energy use of

Continued page 5

Demonstration site progress

At this half way stage, Construction has finished in Norway (Bergen), Denmark and Lithuania, is due to finish within the next months in Germany, Chech Republic and Norway (Hol), and is just starting in Greece. Visit http://www.brita-in-pubs.eu/ for regular updates including a construction diary.

First results made public

The BRITA in PuBs partners are pleased to announce that the first public results after the first 18th month period of the project are now available.

The documents are:

Deliverable no. 5: "Socio-economic Analysis on Barriers and Needs"

Deliverable no. 6: "Communication Guide "

Deliverable no. 7: "Financial Strategies for low energy public retrofits in Europe"

Deliverable no. 8: "Reports on the concept development of the demonstration buildings in BRITA in PuBs"

The reports can be found under the "BRITA in PuBs results" menu item

http://www.brita-in-pubs.eu/

News from the European Commission

Directorate General for Energy and Transport

The European Commission, Directorate General for Energy and Transport is undertaking an active role in the promotion of energy efficiency and sustainable energy through two initiatives: ManagEnergy Initiative and Sustainable Energy Europe 2005-2008 Campaign

http://ec.europa.eu/energy/demand/activities/index_en.htm

The 'Intelligent Energy - Europe' programme

Intelligent Energy - Europe addresses key energy challenges of the EU:

- how can we take advantage of market opportunities for more renewable energy?
- how can we increase the uptake of new technologies and of more energy intelligent habits?
- how can we convert EU policy on energy efficiency and renewables into action on the ground?

http://ec.europa.eu/energy/intelligent/index_en.html

ManagEnergy is an initiative of the European Commission Directorate-General for Energy and Transport, which aims to support the work of actors working on energy efficiency and renewable energies at the local and regional level. The main tools are training workshops and online events. Additionally information is provided on case studies, good practice, European legislation and programmes.

This website includes a partner search system with some 2700 organisations, including 350 energy agencies, which can provide valuable expertise and partnerships on energy activities at local and regional levels. You are most welcome to register for the ManagEnergy Initiative including the monthly newsletter.

ManagEnergy also offers free internet broadcast facilities including some 500 individual video presentations, speeches and interviews on topical energy matters.

http://www.managenergy.net

Videos and Action plan

The Energy and Transport DG regularly produces documentary videos illustrating and explaining EU initiatives and achievements in these two fields, which can be:

- viewed on-line in Real Video format – 5 levels of compression
- downloaded from this site in MPEG1 format (warning: large files!)
- viewed on a CD-Rom copy which can be sent on request

Videos:
http://ec.europa.eu/dgs/energy_transport/publication/videos_en.htm#buildings

Action plan:
http://ec.europa.eu/energy/action_plan_energy_efficiency/index_en.htm

European Commission Projects

For an overview of EC projects:

http://ec.europa.eu/energy/res/index_en.htm

Monitoring proves the energy concept at Provehallen cont …

114 717 kWh/m2, which is only about 0.5 % from the predicted result.

Reaching a low-energy standard requires additional investments due to the extra insulation, efficient ventilation systems and other energy saving measures.

The predicted energy savings justifies the additional savings at the design stage. This has also been the case for Proevehallen as for all the BRITA in PuB demonstration projects. Therefore the verification of the predictions by the measured results are really important as it adds to the confidence in energy saving measures encouraging other building owners to do likewise - invest in energy savings up front and get a reasonable pay-back afterwards.

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www.ecobuildings.info

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