Sustainability and the Built Environment

Sustainability may be the topic of the moment, but how does it relate to the built environment?

Sustainable building design should aim to provide a balanced solution, offering optimum working/living conditions, alongside reduced environmental impact, both now and in the future. Taking the complete building lifecycle into consideration, there are many factors involved, from the location of the building, its design, subsequent operation and maintenance, to the construction materials and practices used, and how any future changes of use are addressed.

Contrary to popular belief, sustainable buildings need not cost more; greater attention to detail and more intelligent design and working practices are the key, and often offer cost savings. All those involved in the building design process have a duty to address these issues, as by striving to be more sustainable they will not only improve user comfort and reduce environmental impact, but will also help continue raising the standard of building design and construction. A number of SEI programmes have demonstrated a variety of solutions to creating a more sustainable building stock, often comprising an integrated approach of high efficiency fabric and construction coupled with low energy or renewable energy services. They include the House of Tomorrow programme for new homes, the Public Sector Model Solutions programme and the Warmer Homes Scheme for retrofitting the homes of low-income households.

But often a larger agenda is needed to kick-start mainstream commercial uptake. Interestingly, here in Ireland the drive towards more sustainable building design is largely being led by regulatory factors, with the European Performance of Buildings Directive (EPBD) set to play a vital role in achieving the Government's emission reduction objectives, as well as introducing a building performance rating system.

Energy Performance of Buildings Directive (EPBD) Update

The purpose of the EPBD is to promote improvements in the energy performance of buildings by informing consumers on the energy efficiency of buildings and thus enabling them to take energy performance into consideration when making a property decision. The implementation of the EPBD in Ireland is the responsibility of an Inter-Departmental Working Group, which consists of representatives from Department of Environment Heritage and Local Government (DEHLG), Department of Communications, Marine and Natural Resources (DCMNR) and SEI. Ireland is on track in implementing the requirements of the EPBD and the key updates since the last edition of Energy Update are summarised below.

Legal Transposition of EPBD Requirements

EU Member States were required to transpose the EPBD into national legislation by 4 January 2006. The following arrangements for the legal transposition of the EPBD in Ireland have now been made:

Building Regulations (Amendment) Regulations 2005 (S.I. No. 873 of 2005), published on 21 December 2005.

The Building Control (Amendment) Bill 2005, published on 22 December 2005.

The EPBD Action Plan

The EPBD Action Plan which sets out the proposed national arrangements and series of development tasks, responsibilities and timeframes required to implement the EPBD in Ireland, was published by the EPBD Working Group in July 2006. This plan considered submissions made during the EPBD Public Consultation period, which ended in July 2005 and also considers findings of studies commissioned by SEI, and perspectives and experiences from other Member States.

Building Energy Performance Standards

The minimum energy performance standards are specified in Building Regulations Part L. The Building Regulations (Amendment) Regulation 2005 (S.I. No. 873 of 2005) was published in December 2005. This regulation introduced a requirement to show that the CO2 emissions associated with energy use for space heating, water heating, ventilation and lighting of a new dwelling are limited as far as is reasonably practicable. DEHLG published the 2006 Edition of the Technical Guidance Document (TGD) to Part L of the Building Regulations in May 2006 to give guidance on how to comply with the amended regulation.

Building Energy Rating Methodology

The national methodology cited in TGD L for calculating energy related CO_2 emissions from dwellings and the methodology that will be used to calculate Building Energy Ratings (BER) for the purposes of complying with Article 7 of the EPBD was published in May 2006. The methodology is entitled Dwellings Energy Assessment Procedure (DEAP) and is based on the relevant draft European standard prEN ISO 13790 and has many similarities to the Standard Assessment Procedure (SAP) which is used in the UK.

A user-friendly software package based on the DEAP methodology is currently being developed and will be available for download from the SEI website. Registered BER Assessors will use this software to generate BER Labels and Advisory Reports for new residential buildings.

Home-heating Appliance Register of Performance (HARP)

SEI has commissioned a project to develop a Home-heating Appliance Register of Performance (HARP) database. The database will be an adapted version of the "SEDBUK" database, which is used in the UK. It is expected that the database will be used to provide specific product efficiency information for calculating BERs for dwellings and as a resource in the boiler efficiency promotion campaign, which Ireland will develop to comply with Article 8, Option B of the EPBD.

BER Assessor Training

The EPBD Implementation Group has published a training specification for BER Assessor Training Programmes for new dwellings; a copy of this can be downloaded from the training link on www.sei.ie/epbd. All potential assessors must complete and pass a training programme that meets this specification. Training providers are in the process of developing validated training programmes to meet the Training Specification. Once validated training programmes are available, SEI will publish the details on www.sei.ie/epbd (training link).

Further information on the EPBD can be found on www.sei.ie/epbd