



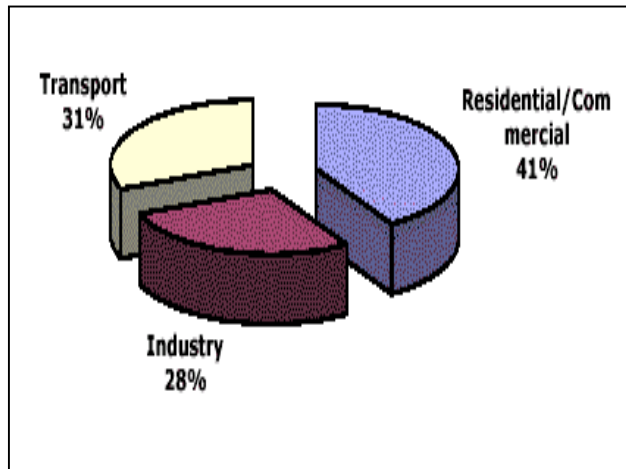
ARCHITECTS' COUNCIL OF EUROPE
CONSEIL DES ARCHITECTES D'EUROPE

Towards a more Sustainable Architecture

Prof J Owen Lewis

WG Environment & Sustainable Architecture

Energy Performance in Buildings Directive



Breakdown of final energy demand in the EU

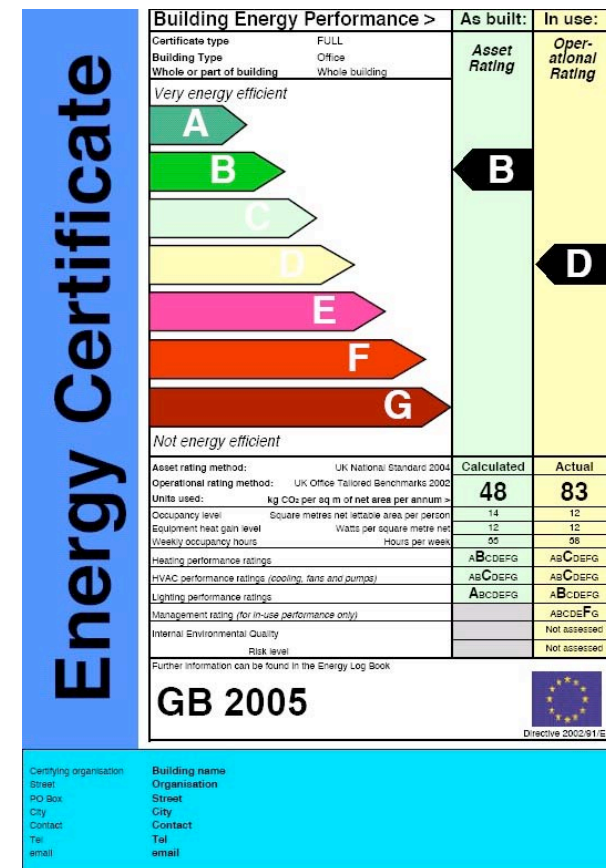
Buildings are the single biggest energy consumer in the EU, directly accounting for close to 50% of the EU's final energy demand

“An amended Directive could enlarge the scope to more buildings, strengthen and specify some of these requirements and add, for example, financing aspects. The changes under consideration aim at overcoming multiple barriers that hinder the utilisation of the vast potential for energy demand reductions in the buildings sector.” -EC 2008 programme

Energy End Use Efficiency and Energy Services Directive COM2006/32 EC

Energy performance certification

- Buildings must be certified when constructed, sold or rented
- At this time the certificate must be less than 10 years old
- The certificate must allow comparisons to recognised benchmarks
- The certificate should provide advice on energy efficiency improvements
- Public buildings over 1,000m² to lead the way by publicly displaying their certificate



Source: www.eplabel.org

The wider challenge

- Stern Review: “The scientific evidence is now overwhelming: climate change is a serious global threat. Climate change is the greatest market failure the world has ever seen. Tackling climate change is the pro-growth strategy for the longer term.”
- EU in March announced decision to reduce GHG emissions min. 20 % below 1990 levels by 2020, and to set binding targets for renewables



Sustainable architectural design

“Sustainable design integrates consideration of resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land use and an aesthetic that inspires, affirms and enables”

-Union Internationale des Architectes' Declaration of Interdependence for a Sustainable Future, Chicago, 1993



**Economic, Social, and Environmental
pillars of sustainable development**

Contrasting approaches

- Engineering systems to heat, cool and light for satisfactory indoor conditions

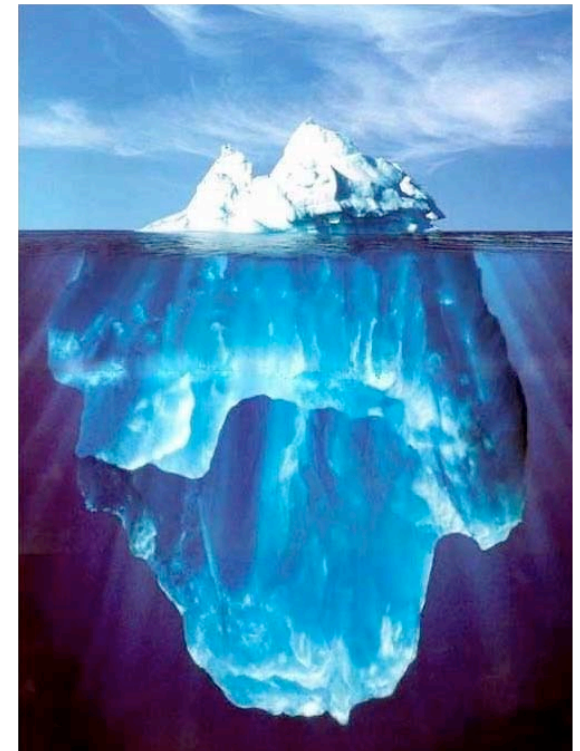
versus

- Integrating users and environment in an architecture which uses ambient energy sources and seasonal and diurnal outdoor changes to minimise reliance on mechanical and electrical systems



Sustainable building agenda

- Environmental implications of design, construction and operation
- Local materials, embodied energy
- Indoor environmental quality
- Water conservation
- Waste minimisation and recycling
- Whole life cycle, 'cradle to grave'
- Design and construction process
- Performance in use
- Conservation and reuse of old buildings
- Urban design and spatial planning



Energy-optimised building design

- An architecture more **responsive** to climate and human needs, seasonal and diurnal change
- Building and site design that responds to **location** and takes optimal advantage of ambient energy sources
- Use of **building fabric** to shade and ventilate, to collect, store and distribute solar thermal energy and to distribute daylight appropriately
- **Healthy indoor environments** with high standards of thermal and visual comfort
- Smart energy design, and use of materials and energy from **sustainable** sources



The ACE -some earlier specific energy related actions

- EU Projects
 - PISA - Photovoltaics in Buildings
 - **'A Green Vitruvius'**
 - Towards Class "A"
- European Construction Tech Platform
 - Chair of Urban Issues
 - **E2B: Energy Efficient Buildings JTI**
- Thematic Strategy on Urban Environment
 - Urban Design
 - Sustainable Construction Methods and Techniques
- Promotion of architects in EPBD Certification
- **Political Statement**
 - Sustainable Architecture & Environment
 - -Energy Efficiency



ACE Political Statement

Sustainable Architecture & Environment -Energy Efficiency

The ACE commits itself to

- **An active promotion of the principles of sustainable development**
- **The formulation of proposals for concrete action**
- **Contribute to the implementation of agreed EU proposals, in terms of that which concerns it directly, as well as in conjunction with other interested organisations.**

Specific early measures will include

- The inclusion of energy and environmental performance information as an assessment criterion in all architectural competitions and competitive selection processes
 - The encouragement of similar performance information to accompany all published architectural reviews
 - A recommendation that such information becomes an additional criterion in selection processes for public architectural awards.
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ACE Policy Implementation

Sustainable Architecture & Environment -Energy Efficiency

Selected national policies and practices

Bill Gething, RIBA

Vibeke Grupe Larsen, AA

Georg Pendl, BAIK

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Passive and Low Energy Architecture



Passive and Low Energy Architecture