Advanced Building News

International Initiative for a Sustainable Built Environment

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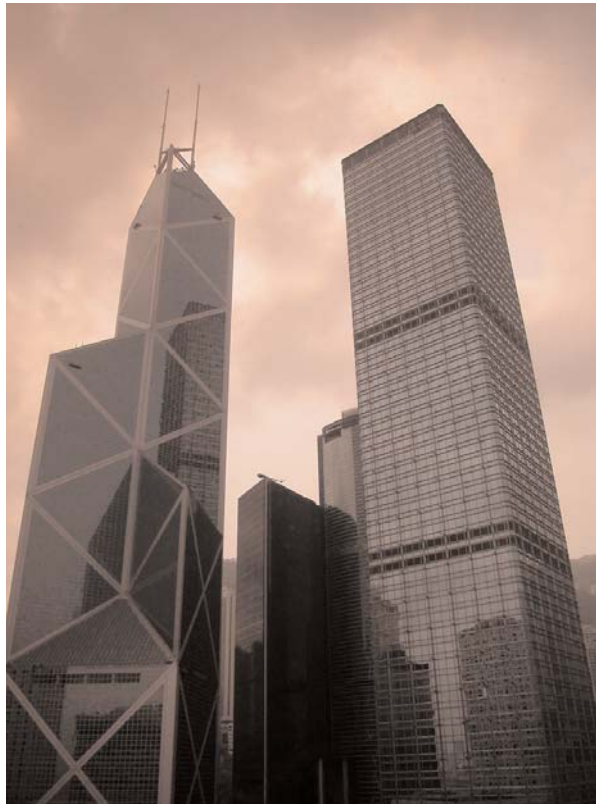
Hong Kong

Free sample

Labelling symposium in Hong Kong

On March 19, about 320 delegates packed a meeting room in the new HK Convention Centre, to discuss issues related to performance labelling of



buildings. The conference was sponsored by several major Hong Kong organizations, including the Professional Green Building Council, the HK-BEAM Society, the HK Buildings Department and the HK Environmental Protection Department.

Hong Kong is a truly unique city, with a large population, a large population living within a constrained land area, major development pressures, and a very sophisticated building industry. In addition, HK has a larger proportion of curious, literate and technically sophisticated people than most cities, and so it is understandable that rating and labelling systems are of interest.

In fact, HK has had a labelling system in place since 1996, when the HK-BEAM system was launched. This system was inspired by the UK BREEAM system, but was extensively modified to suit the unique conditions of the city. It has undergone several iterations since its debut, and a new version is currently in a pilot testing phase.

Two major building types are priority areas for labelling: office buildings and apartment buildings. Labelling systems respond to very different demands in these cases: private developers of large, sophisticated and expensive office space need to show the performance potential of their products in an extremely competitive marketplace, while the HK government is an active developer of low- and middle-income housing, and looks at

labelling systems as a way of demonstrating their responsiveness to social, economic and health needs, as well as the functional requirements of their clientele.

Given the relatively extensive experience with HK-BEAM (some 100 buildings assessed since 1996), it is somewhat surprising to find that a new labelling system is under active development, *called the Comprehensive Environmental Performance Assessment Scheme*, or CEPAS. This project was initiated by the HK Government in 2001, and its technical development is being led by the consulting firm of Ove Arup and Partners Hong Kong Limited. As part of the development program, some 11 other systems have been evaluated, and a preliminary framework has been completed. According to the presenter, Dr. Hui Ming Fong, a strong emphasis has been placed on consultation

with various stakeholder groups in Hong Kong. An unstated implication is that this is an area where the HK-BEAM system may be considered to be deficient.

Other presentations at the Symposium included a general overview of rating and labelling systems, a description of the Japanese CASBEE system, and a review of the Korean certification system.

News from Australia

2003 has seemingly been “water year” across Australia. All levels of public authorities are implementing water efficiency schemes and education programs. Most Water Utilities are offering dollar rebates for rainwater collection tank installations. Tanks of between 2,000 and 3,999 litres are eligible for a rebate of either AUD150 or AUD300 depending on whether the rainwater is used solely for outdoor use or for toilet flushing or in the washing machine as well. Rebates of AUD650 also apply for tanks in excess of 7,000 litres, which are connected to the toilet or washing machine.

Water wasting prohibitions abound. Mandatory water restrictions in urban areas include a total ban on outdoor sprinklers and fixed watering systems and on hosing hard surfaces, including vehicles, paths and buildings. A selection of current Australian initiatives related to the assessment and delivery of sustainable building is outlined below.

NABERS

The national government has developed Australia's first comprehensive Building Environmental Rating System, called NABERS. The system now completed is a very substantial development of the first NABERS draft seen by the IFC in 2001. R&D and framework design was by a team including Auckland UniServices Limited, the University of Tasmania and Exergy Australia Pty Ltd. The principal project personnel are Dr Robert Vale, Professor Brenda Vale, Professor Roger Fay and Dr Paul Bannister. Web posting is imminent through http://www.deh.gov.au/industry/construction/nabers/

NABERS is a “whole-of-environment” assessment that rates a building on the basis of its measured operational impacts - including energy, refrigerants (greenhouse and ozone depletion potential), water, stormwater runoff and pollution, sewage, landscape diversity, transport, indoor air quality, occupant satisfaction, waste and toxic materials. Separate ratings are given for commercial office base buildings, tenancies and whole-of-buildings as well for residential buildings. Some of the issues assessment methodology is unique. An initial web-based public feedback program is expected very shortly. Implementation system is yet to be announced.

Green Building Council Australia

A Green Building Council of Australia, affiliated with the World Green Building Council organisation was incorporated in 2002. The GBCA is led by Che Wall of the WGBC, and Maria Atkinson who is known to many of the IFC. June 2003 saw the launch of its pilot pre-assessment rating tool for new commercial buildings, greenstar, at http://www.gbcaus.org/greenstar/page

In the meantime the GBCA is working with the Property Council of Australia and other industry participants towards a star rating certification system similar to the LEED and BREEAM systems. Greenstar is a whole of building protocol for the environmental performance of Australian commercial office buildings based on a number of criteria, including energy and water efficiency, quality of indoor environment and resource conservation. Like LEED and BREEM, it is essentially a market transformation tool demonstrating good practice rather than building performance itself, like the

GBTool. To ensure commercial viability it allows for trade offs between different areas such as energy and water, etc. Unlike LEED and BREEAM the pilot version does not require any minimum standards for selected significant issue areas. As expected the launch has drawn a lot of Australian industry comment and its final development is keenly awaited.

BASIX

BASIX is a comprehensive web-based planning tool for councils and proponents of residential developments to assess the potential performance of their development against an agreed set of sustainability indices. It is being developed by the NSW Department of Infrastructure, Planning and Natural Resources for implementation in mid 2004. Current information is posted at http://www.planning.nsw.gov.au/settingthedirection/basix.html where further developments will be exhibited fully for public comment in February 2004.BASIX encourages developers to focus on the areas that can reasonably be addressed at the building construction stage such as energy and water efficient fittings and appliances, building materials and landscaping. Proponents will need to demonstrate certain minimum performance at the development consent stage.

Building Code of Australia – EE measures

The Australian Building Codes Board has commenced a program for introducing mandatory minimum energy performance requirements through the Building Code of Australia. The first measures for detached houses were introduced in Jan 2003. These require 4star energy performance with the Nabers rating tool. Measures for multi-residential buildings will follow in May 2005 and all other building types in 2006. See http://www.abcb.gov.au/content/codes/

Victorian Government – EE measures

Victoria recently announced that it intends to exceed the national 4star standard by implementing a 5star requirement for all new houses and apartments from July 2005. Victorian performance is demonstrated through a Nabers related First Rate tool. Transitional arrangements will apply from 1 July 2004, incorporating a 4 star energy standard if combined with some water efficiency measures. Information can be found at http://www.sea.vic.gov.au/buildings/index.html

Municipal Governments

2002-2003 has seen the introduction of many planning stage ESD checklists as development control tools for Municipal Councils.

Melbourne Docklands ESD Guide at http://www.docklands.vic.gov.au/docklands/about/publications and City of Port Phillip Sustainable Design Guide and Scorecard at http://www.docklands.vic.gov.au/docklands/about/publications … are good examples. In NSW, Councils await the implementation of the BASIX planning tool.

EcoSpecifier

A handbook and Web site guide to sourcing environmentally preferable materials that are commercially available in Australia has been developed by the Royal Melbourne Institute of Technology, RMIT. See http://ecospecifier.rmit.edu.au/about_fm.htm

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Taiwan

Recently I had a chance to visit Taiwan, on my way to Hong Kong. There are a number of things going on that may interest our readers.

The prevailing environmental issues, according to the people we talked to, are water scarcity, excessive densities in some areas, air pollution, and the fact that some 98% of Taiwan's energy is imported.

Two of the main actors in the field of green buildings are a governmental group called *Architecture and Building Research Institute* (ABRI), which is a branch of the Ministry of the Interior. ABRI consists of four divisions and also controls three research labs, so it is quite a substantial organization. Dr. Ming-Chin Ho, a senior official at ABRI, explained that the Planning Division focuses on four main areas of activity: Building Culture, Historical buildings, Building Economics and Urban Development, a very interesting mix of areas.

Another major actor on the scene is a non-profit foundation called the Archilife Environ-Control Research Foundation. This organization is somewhat unique in our experience, since it funds research in several universities on the island, rather than the other way around. One of the centres is located within the Department of Architecture at the National Cheng Kung University

in Tainan, at the South end of the island, and the Foundation has also built a research centre (not visited) at the North end of Taiwan.

Building rating and labelling systems are an area of current interest. ABRI has developed a relatively simple evaluation system that focuses on nine issue areas:

- Biodiversity
- Greenery
- Soil water content
- Energy conservation
- CO2 emission
- Waste reduction in materials
- Indoor environmental quality
- Water conservation
- Sewer and garbage

Buildings being evaluated under this system must pass two prerequisities (energy and water conservation) plus two from among the other seven indicators.

The Archilife Foundation has focused mainly on indoor environmental quality to this point, but has also done work on the growing of organic crops in special movable systems that are designed to also provide shade. The Foundation is now broadening its interests and has decided to participate in the Green Building Challenge process.

Nils Larsson, iiSBE

Japan

Several developments are of interest. An OECD workshop was held in Tokyo in mid-January on "Sustainable Urban Building Stocks" and featured interesting presentations on sustainable building stocks. The workshop was the third in a series, all related to an OECD project on sustainable construction that has been financed by the Japanese Ministry of Land, Infrastructure and Transport (MLIT) for five years. The previous phases of the work initially focused on policies, programs and regulations related to energy performance, and construction and demolition waste in buildings, but the scope of the work grew to include most of the issues that would be considered to be part of a green building agenda. Work during these first two phases was headed first by Shoichi Ando and then Takegawa Hasegawa, and an excellent report was produced in 2003.

The current phase of work is headed by Hirohisa Awano and focuses more on building stocks, their design, renovation and operation, in other words, sustainable building stocks. The interest of the Japanese-led research is still on policies, programs, regulations and barriers to improvement, but is steadily growing more ambitious, with this current phase leading into urban issues.

The OECD workshop and the more recent Hong Kong Symposium have given Japanese researchers an opportunity to describe their home-grown rating and labelling system, called the Comprehensive Assessment System for Building Environment Efficiency, or CASBEE. This is an ambitious and interesting system since it will, when completed, cover the whole lifecycle in separate modules. It also adopts an environmental efficiency approach, by providing results that are based on the quality of environmental performance, divided by the environmental load. No certifications under CASBEE are yet available, but this may change in the near future. An English-language manual has recently been completed, and plans are to produce a simplified manual / tool for local governments.

Finally, it is interesting to note that in Tokyo, the Municipal Government now requires an Environmental Statement Paper for all buildings over 10,000 m2, and the results for over 150 projects per year are shown on a public website.

Korea

In 2002 an assessment system for multi-unit residential buildings was announced. In 2003 a GB certification system for offices was approved, and one for schools is under development. the criteria are based mainly on GBTool, and they have certified four buildings to date. Three agencies – KIER (Korea Institute for Energy Research), KHC (Korea Housing Corporation), and a private organization are involved. Two grades are awarded: Best and Excellent. The team will develop an analysis of their system and how it relates to GBC and will present buildings at Tokyo.

Rating systems in Italy

Andrea Moro, Italian Team Leader

In April 2002, on the occasion of the IFC meeting in Torino, I was requested to join a working group on green building being established by ITACA (Federal Association of the Italian Regions) . The aim of this group was to establish an objective set of requirements to define "what is" a green building and to study an evaluation method to measure "how green" a building is. The need was expressed by the Public Administration: to improve the green building practice, through different incentives, it is necessary to fix requirements and a rating system. The GBTool system appears to address at least part of their needs.

The ITACA working group was composed by the representatives of the Italian Regions, by me as technical expert, and by other people from the Italian Environmental Protection Agency and from ENEA. Many technical meetings were held in other regions of Italy, mainly in Rome, and the work was completed in October 2003. The result has been the "Protocollo ITACA".

The "Protocollo ITACA" has now been adopted officially by some Regions (Piemonte, Lombardia, Marche). It has been already used as part of a competition called "Contratti di Quartiere 2003" (District Contract 2003), a major program managed by the State to financing the renovation of deteriorated urban districts from the social, economic and environmental point of view. Every municipality in Italy can present a proposal in the competition, and the environmental aspect of each proposal will be rated using a simplified version of the "Protocollo Itaca".

What is the "Protocollo Itaca"

The system is a rating methos based on the GBTool. ITACA chose to refer to the GBTool because:

There was no existing rating system available in Italy that could be used as the basis of the "Protocollo Itaca". The GBTool (particularly after the IFC meeting in Torino) is considered the best reference tool for the purpose because of its international character and the technical level of the people that is taking part to the process in all the world.

Another aspect of GBTool that was of interest to the developers of the Protocollo Itaca was the flexibility of the GBC assessment framework. In this respect the needs of Italian Regions is similar to the international pressures that led to an adaptable GBTool framework; a necessity to have a tool that could be adapted to regional characteristics. For this purpose, the weight and benchmark approach has proven to be useful.

As a consequence of these factors, the "Protocollo Itaca" is strongly based on GBTool, with few modifications. It is hierarchically structured in the same way, with Performance Issues, Performance Categories, Performance Criteria, Performance Sub-criteria. One first difference is that the Performance Issues are 7. Many of them directly derive from the GBTool. Others have been added. The Performance Issues are:

- Outdoor Environmental Quality;
- Resource Consumption (GBC);
- Loadings (GBC);
- Indoor Environmental Quality (GBC);
- Quality of Service (GBC);
- Management Quality;
- Transport.

Each Performance Issue contains (more or less the same of the GBTool) Categories, Criteria and Sub-Criteria. The weighting system is the same of the GBTool as the scoring system. All performance criteria and sub-criteria are set within performance scales ranging from –2 to +5. Performance scores refer always to an explicitly declared benchmark. The final result of the application of the protocol is a score ranging from –2 to +5 for the whole building.

The full "Protocollo ITACA" includes 65 Criteria. Two simplified versions have been already defined. The first includes 25 Criteria, the second 12. The modifications to the GBTool that the IFC will adopt in the next period up to SB2005 will be presumably introduced in the next version of the "Protocollo ITACA".

USA

There is a lot going on in the USA. Some interesting R&D is going on – a DOE (Department of Energy) study focuses on better methods of measuring energy use, and also POE (post-occupancy evaluation) work. There is also work by GSA (General Services Administration) on occupant productivity, and the EPA (Environmental Protection Agency) is developing a Green Specification system. Work is also on-going with the Athena Sustainable Materials Institute of Canada, to develop a materials database so that embodied energy and emissions tables can be produced. The GSA is also developing a web-enabled commissioning tool that will be very interesting.

LEED is gaining a big market, and is developing new variants. Also USGBC (US Green Building Council) is now tackling hard issues such as how to deal with PVC and other material issues within the LEED system. The USGBC is a focus of activity – the organization has trained over 1000 people have over 3000 accredited professionals. Two new variants of LEED, Commercial Interiors and Existing Buildings, are ready for implementation, while a Core & Shell version (for speculative office buildings) is just starting the pilot phase. Two more versions – for homes and for neighbourhood developments -- are just starting development.

Joel Ann Todd, USA

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27-29 September, 2005

The 2005 World Sustainable Building Conference in Tokyo

iiSBE and CIB are pleased to announce the SB'05 conference, to be held in Tokyo.

The conference is being organized by public and private-sector organizations in Japan, with the support of iiSBE and CIB.

For details, see:

<http://www.sb05.com>