

# Green Construction *Part 2*

**This month our regular contributor Dr Arthur McInnis continues with his look at green construction beginning with the importance of the Hong Kong Pavilion Project in Central.**

## **Integer**

On the international stage, both government and industry are welcoming transnational partnerships promoting 'green' construction in Hong Kong. This can be seen in the current Integer Hong Kong Pavilion Project. Integer is a United Kingdom based team of architects, IT specialists, building experts and environmental consultants, who are developing and building 'intelligent and green' housing. Integer's aim is to adapt their UK-tested approach to housing construction, based on the principles of sustainable development, intelligent technology and innovative construction, and make it workable in the high-rise, high density, high humidity context of Hong Kong.

## **The Integer Partnership**

The Hong Kong Pavilion Project is a partnership project designed to introduce Hong Kong to Integer's approach to intelligent and green housing in the Hong Kong context. The Hong Kong Pavilion is a 100ft high, glass and aluminium clad, tee-pee shaped exhibition centre, designed to perform a number of functions. The pavilion provides exposure to Integer's innovative technology and design through two showcase apartments and an interactive journey through a 'flat of the future.' The pavilion is meant to showcase Integer's technologies of the future, while serving to educate both professionals and the public on a variety of topics including 'intelligent services,' environmental technology, and 'social change and housing.' The pavilion is scheduled to open on the old Tamar site in late 2001.

The Hong Kong Pavilion Project, once again, is a partnership, involving both the UK and Hong Kong governments, and also industry players from the UK and Hong Kong. Tony Blair's catch phrase in a recent press release issued by Integer seems to reflect the mood of both the UK and Hong Kong governments: "Let's sell the new insight - we can be richer by being greener, and by being greener we can enrich our lives."

At the industry level, developers Swire Properties and the Hong Kong Housing Authority joined forces with Gammon, China Light

and Power as well as Integer Intelligent and Green Ltd. The Hong Kong team also includes Leigh & Orange Ltd and Franklin + Andrews (Hong Kong) Ltd, with support from UK companies, Cole Thompson Associates and i&i limited.

## **New International Standards And Competitions**

The creation of international standards for the environmental assessment of buildings is another important development at a time when reliable and independent environmental information about building materials and components are in high demand. The Green Building Challenge is a leading edge international competition striving to engage industry and government, in an attempt to develop international, standardised 'building environmental assessment methods.' The goal is to develop practical, international standards to assess buildings across a broad range of considerations. Maastricht was the site of the 2000 competition, where roughly 20 national teams participated, and over 30 building assessment projects were presented. Perhaps Hong Kong could host a future event.

## **The Building Research Establishment**

The Building Research Establishment (BRE), one of the UK's leading centres of expertise on building and construction, has also been active in developing standardised environmental assessment methods or 'Environmental Profiles.' According to the BRE, these profiles are designed to enable architects, contractual specification writers and clients to make informed decisions about construction materials and components, by developing a method for providing an independent, "level playing field" of information about the relative environmental impacts of different design options.

## **The Green Versus Sustainable Construction Debate**

The concept of green building methods raises the issue of the difference between 'green' and 'sustainable' construction methods. There is a certain amount of debate amongst professionals and academics concerning the difference between green and sustainable construction. This debate is significant because the distinction between the two concepts is critical in structuring environmental assessment methods. At the risk of over-generalising, much of the literature seems to define the concept of green construction as particularly focused on setting environmental standards for individual buildings. This is in

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<sup>1</sup> <http://www.integer.com.hk/press/pressrelease1.html>

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<sup>2</sup> Cole, Raymond J. "Building environmental assessment methods: clarifying intentions," *Building Research & Information* (1999) v. 27 (4/5) p. 231.

<sup>3</sup> *Ibid.*, p.232.

contrast to the broader concept of sustainability which is meant to encompass the principles outlined in Agenda 21.

Criticism of green construction is sometimes voiced on the premise that simply making individual buildings green is too narrow and that green construction and assessment methods must be viewed as components of sustainable development. Conversely, it can be argued that even though the majority of green environmental assessment methods are voluntary in their application, they stimulate market demand for buildings with improved environmental performance. The local private sector in Hong Kong has some belief in this and has taken the initiative in establishing a mechanism for improving environmental performance in construction. The best example of this is the Hong Kong Building Environmental Assessment Method (HK-BEAM) that began in 1996 as a voluntary certification scheme. HK-BEAM recognises improved environmental performance in building design and management. The scheme seeks to promote environmentally friendly buildings, minimise adverse environmental impacts, encourage best practices in design and management, set industry standards, provide market recognition for improved environmental performance, and ensure the integration of environmental features into building design and management.

There are of course difficulties. One of the difficulties at present, which certification schemes raise for example, pertains to setting demand targets. The reason is that the targets must obviously anticipate market acceptance. This can be an almost unknown variable. A more fundamental question entails uncertainty over whether the schemes' use leads to improvements in overall environmental performance to meet broader sustainability targets.

The 'green vs. sustainable debate' indicates that establishing a vision of sustainable development and implementing that vision is indeed a complex and often contentious process. It seems likely that the government will have to navigate these types of issues when charting its own vision of sustainable development in the 21st century. Some of these potential future issues include: What does incorporating sustainable development principles (social, economic and environmental concerns) mean in a practical sense? Is a less holistic (i.e. green) approach acceptable? Further, who will determine the parameters of sustainability and to what extent will economic and social factors play a role in determining its meaning? And finally, what is a realistic time frame for making some tangible steps toward addressing the broad guidelines in

Agenda 21 in Hong Kong? While these questions are fundamental sight of practical details along the way must not be lost. An example can be given.

### **Green Construction In Action – Green Roof Infrastructure**

One of the most relevant international innovations in environmentally conscious construction and which is eminently practical in nature and coming to Hong Kong pertains to 'Green Roof Infrastructure.' First of all what is Green Roof Infrastructure in the international context? Shortly put, it involves growing plants on a built structure, containing a number of layers, at below or above grade, with vegetation growing at the top and tailored to individual buildings.

In the Hong Kong context, support for the concept can be seen in the recent tri-government department joint practice note entitled Green and Innovative Buildings outlining new incentives for green features including communal sky gardens and podium gardens. The incentives come from the fact that these new types of gardens may now be excluded from calculations of the gross floor area and site coverage. The incentives are part of long-term objectives by the Building Innovation Unit and the inter-departmental working group on green and innovative buildings to implement reforms to enhance environmental performance of the built environment.

Green roofs in fact have been used in one form or another for several millennia to cool buildings, improve aesthetics and provide shelter from winter elements. Today, green roof technology has evolved to provide a much wider array of public and private benefits ranging from improvements to storm water management to air quality – both aspects which are of significant interest to Hong Kong. These types of benefits have hastened green roof infrastructure's appeal in Europe and North America.

In closing, while the government and industry face both challenges and opportunities in defining and implementing green and sustainable construction practices and the evolving international standards; the innovations and partnerships outlined here point to a clear way forward.

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<sup>4</sup> "Construct for Excellence: Report of the Construction Industry Review Committee" under the chairmanship of the Honourable Henry Tang, January 2001, p.149.

<sup>5</sup> Ibid, p.234.

<sup>6</sup> Buildings, Lands and Planning Departments, Joint Practice Note No 1, Green and Innovative Buildings, February, 2001.

<sup>7</sup> Ibid, other features such as balconies, wider common corridors and lift lobbies, acoustic fins, sunshades and reflectors, wing walls and wind catchers attract the same incentives.

<sup>8</sup> Peck, Steven W. "Green Roof Technology" ABN 25/26, p. 20.