Waterfront House and Ecological Design in the Tropics

The project

The architect, Ken Yeang, is an active proponent of the 'green' skyscraper (Hamzah Yeang, no date). He has proposed and developed ideas for the 'green skyscraper' (Figure C.25), and early designs included a sustainable design for the EDITT (Ecological Design In The Tropics) tower (Yeang, 1999; Hamzah and Yeang, 2000). The concept is to reduce the environmental impact of tall buildings. Design includes the use of 'vertical' landscaping using local vegetation, facades that allow for natural ventilation and passive use of energy, water recycling, flexible floor space design, and the use of photovoltaics to generate electricity. The Waterfront House proposal in Kuala Lumpur represents a new development of the green skyscraper idea.

Sustainability features

In Waterfront House, light pipes will be used to deliver natural light (sunlight and diffuse sunlight) to the deep recesses of the building, using laser- cut panel light deflectors (Hansen *et al.*, 2002), in principle saving up to 50% of electricity costs. Yeang is not directly following the solar access theory in terms of providing all users access to direct daylight and sunlight, but is rather delivering the light to users. The design is reported to be relatively inexpensive, and so could be used in the refurbishment of poorly sunlit older buildings as well as in new construction (Jayasankaran, 2004). It is unclear at this stage how this design would fare in a tall building as the pipe size is currently very large at 20 m (l) × 0.8 m (h) × 2 m (w) (Jayasankaran, 2004).

References and links

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Yeang, K. (1999) *The Green Skyscraper: The Basis for Designing Sustainable Intensive Buildings*, Prestel Verlag, Munich.

Figure C.25
The 'green skyscraper.' (*Source*: Yeang, 1999; http://www.trhamzahyeang.com/project/ skyscrapers/ waterfront01.html)

Bank of America Tower, New York

The project

The focus of much sustainable building design has been on domestic architecture, neglecting other forms of building. The Bank of America Tower (Figure C.26) is an interesting departure, demonstrating how commercial buildings can be more environmentally friendly. Upon its completion, this tower will be the world's most environmentally responsible high-rise office building and also the first to aim for the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Platinum rating (Smart Communities Network, no date; The Durst Organisation, 2004).

Sustainability features

The tower project incorporates sustainability measures and high-performance technologies to provide an energy efficient, water efficient building with a high-quality indoor environment (with regard to natural light and fresh air). The Tower will be constructed from mainly recycled and recyclable building materials, and will feature a range of advanced environmental technologies, such as filtered under floor displacement air ventilation, translucent insulating glass windows which allow maximum daylight and an on-site 4.6-megawatt cogeneration plant, which will provide power, cleanly and efficiently. Daylight dimming and light-emitting diode (LED) lights will be used to reduce usage, and CO_2 monitors will automatically introduce fresh air as and when necessary. There will be also planted roofs which will contribute to reducing the urban heat island effect, and a grey-water system in place to capture and reuse all water (Smart Communities Network, no date).

References and links

Smart Communities Network (no date) *Groundbreaking Held for World's Most Environmentally Responsible High Rise*. Retrieved from the World Wide Web on 01 August 2004 http://www.sustainable.doe.gov/management/geninfo.shtml

The Durst Organisation (2004) *One Bryant Park*. Retrieved from the World Wide Web on 01 August 2004 http://www.durst.org/i_bpl_news.asp

Figure C.26
Commercial, but sustainable.
(*Source*: http://www.durst.org/i_bpl_news.asp)