BUILDING GREEN ASIA

Special Advertising Section

Good basic design plus some simple solutions can yield a big payback

THE WORLD'S most advanced green buildings offer energy savings of 80% or more compared with ordinary buildings, but most of the efficiency gains do not result from cutting-edge technology. Rather, they are the result of good basic design and superior use of standard materials.

The buildings at the vanguard of the green building movement, such as the Pearl River Tower in Guangzhou, and the Bahrain World Trade Center, make use of advanced wind-turbine technology, but those systems are expensive, and not yet widely available. In Asia, where few green buildings exist of any kind, builders and regulators could achieve greater gains by emphasizing inexpensive, cost-effective technologies. "What China needs are the very fundamental, very low-tech sustainable buildings," says James Brearley, manager of Shanghai-based Brearley Architects and Urbanists. "With the high-tech sustainable buildings, you need a maintenance man with a Ph.D. in science to tweak it and refine it."

With green buildings, even a small investment can yield a large payback, while after a certain point, the technology becomes complex and expensive. The simplest, most cost-effective solutions are better insulation and glass, more efficient lighting and air-conditioning systems, better building orientation, and built-in electricity-producing solar panels.

A savvy investment in green technology that adds just 1% to 2% to the cost of a building can yield energy savings of 30% or more, but even a developer unwilling to pay any premium at all can erect a more efficient building. "Even without any budget, without paying any additional money, you can save about 10% on energy costs and secure your comfort at the same time," says Yingchu Qian, general manager, East China, for EMSI, an international green building consulting company in Shanghai. "But that requires the project team to study the integrated design of the building from the very beginning."

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To achieve optimum results, the green features must be included from the beginning, agrees Trudy-Ann King, Asia-Pacific regional manager for the World Green Building Council. "The principles of green building start with good design, having a good building envelope and good orientation, and making sure that the footprint of the building allows for good access to natural light," says Ms. King, speaking from Melbourne. "Then you look at water, mechanical systems, lighting and automation."

"The most important thing is the integrated design," says Mr. Qian of EMSI. "That means you have a good envelope system — good insulation and good glazing — and then you can reduce the initial cost. Take glazing for example. From different directions, the heat from the sun will be totally different, so you can use good glazing for the exposed sides, but for the north side you can use cheap glazing. If you use the budget smartly, you can control your costs and at the same time you can erect a good building."

Some of the solutions are simple. For example, many office buildings in Asia blaze brightly all night, with entire floors fully lighted and air-conditioned for a handful of cleaners. Easy-to-use systems that allow tenants to fine-tune lights and temperatures are widely available, and are becoming more common. "A lot of buildings are trying to employ programmable 'eco-switch' systems, so tenants can control the temperature and lighting not only during office hours, but also during lunch, and when there are fewer people around," says Janet Pau, program director of the Asia Business Council in Hong Kong. "That can make a big difference in a large office building."

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Many office buildings in Asia still blaze brightly all night, but easy-to-use 'eco-switch' systems can make a big difference in energy costs.

Other cost-effective technologies include sun shades and horizontal eves on southern and western exposures, and power-producing solar panels that are tied into the electrical grid. The latest solar panels are integrated into the building materials, rather than added on later, and they are becoming less expensive as they become more widely used. Water conservation is another promising avenue, and rainwater collection systems, and gray water systems that treat and recycle some of the waste water, are also becoming more popular in Asia.

Meanwhile, engineers and architects continue to try new technologies as they reach for the Holy Grail of sustainable buildings: a tower that produces as much energy as it consumes. Wind turbines are the latest experiment, and further advances in building design are also on the way. And where the most energy-efficient buildings lead, the rest of the industry will eventually follow.

The text of this Special Advertising Section was written by Brent Hannon, a freelance journalist.