

Big players' CO2-busting drive changes property climate

While Asia's carbon footprint is growing as rapidly as its economies and populations, its leading real estate companies – and multinational occupiers – are pushing the green building agenda forward

Sustainability is part of every developer's marketing package, but more and more players in the Asian real estate markets are taking both a philosophical and practical approach to the enormous challenges that face the region in this area.

Asia's largest developers seem genuinely committed to sustainability: the biggest developers in Hong Kong, Tokyo and Singapore all look for green certification, China Vanke publishes a corporate social responsibility report every month and 'eco' projects are springing up all over the region, with passive air cooling, water recycling and on-site food waste composting.

However, the Asia Pacific carbon footprint continues to grow and the region's cities are struggling to manage the sheer numbers of people they contain, the pace of growth and the changing urban environment.

Speaking at last month's ULI conference in Beijing, architect and urban planner Peter Calthorpe said: "Only 12% of journeys in China are undertaken by car, yet many of its

city streets are gridlocked."

It also remains the case that while the biggest and best in the property industry are moving forward, the majority of developers have minimal environmental concerns. Richard Marriott, head of EC Harris's asset and investment advisory business in Asia, says: "Asia does not take sustainability as seriously as the US and Europe does."

Sarah Lee, a senior associate director at architect Benoy, says: "We see more interest in sustainable development from our clients, but it is really only a handful of developers, such as Swire, Capitaland and Sun Hung Kai, that are driving green development."

Missing the bigger picture

Furthermore, developers are inevitably more concerned with their projects' performance than with the bigger picture. Tim Shen, director of sustainability for Asia at CBRE, says: "Most developers look at sustainability on a project-by-project basis, although they may take a more 'placemaking' approach for

a large, mixed-use development. However, the community fabric is more than just an agglomeration of buildings."

Hong Kong-listed China developer Shui On Land has an unusually strong commitment to sustainability and community-building in its large, mixed-use developments in mainland China.

Director of planning and development Albert Chan led the development of Xintiandi in Shanghai, which was one of the first attempts at 'placemaking' in modern China and one of the first to reuse historic buildings, rather than flatten them.

Shui On now has a swathe of Tiandi branded schemes across China and the format – which includes pedestrian areas, a mix of building heights and densities, and public transport links – has been copied all over China.

Some architectural commentators have criticised the Tiandi concept for being a historical pastiche for shoppers; however, the car-free environment of Xintiandi makes

ASIA'S SUSTAINABILITY UNIVERSE CONTAINS MANY STAR SYSTEMS

Green rating systems are key to developing sustainable real estate, as they allow developers, occupiers and investors to quantify sustainability and compare buildings.

However, across the Asia Pacific region there is a mass of acronyms for the different standards in different countries. Hong Kong's Building Environment Assessment Method (BEAM) is one of the oldest in the region, whereas Singapore's Greenmark scheme is one of the most comprehensive.

Australia has two systems: Green Star, developed by the Green Building Council of Australia; and NABERS (National Australian Built Environment Rating System), developed by the New South Wales State Government.

Green Star assesses the environmental potential of mainly new buildings at the design and construction stage, whereas NABERS measures the environmental performance of existing buildings during operation.

In Japan, the CASBEE standard is understandably focused on earthquake resistance, while China's Three Star Green Building Evaluation Standard is augmented by a wide range of local regulations – for example, Shenzhen insists on the use of solar panels on buildings.

Across the region, the US Leadership in Energy and Environmental Design (LEED) rating system has become the most popular international standard, mainly because it is recognised by US-based multinationals and has become something they require internationally.

LEED is not without its critics, however. Some say it takes too much of a 'box-ticking' approach and not enough of a holistic view. Meeta Patel, head of the Singapore office at architect Benoy, argues that it does not work well for South East Asia. "It is a system designed for cold climates," she says.

The system's US background is clear in the attention paid to public transport, which can give new Asian developments (which are in denser, less car-friendly cities) a head start.

It also throws up some inefficiencies. For example, there are LEED-certified developments in Singapore where whole floors of car parking have been given over to bike racks, thus winning the system credits – but very few people cycle to work in Singapore, so the space is wasted.

Later this year, LEED is due for a re-write and LEED 2012 will "really raise the bar" according to Tim Shen, director of sustainability, Asia, at CBRE.

"It is quite a radical upgrade to the system; many things that currently give a building credits will become prerequisites," Shen says. "The final version is due out in the fourth quarter and we expect a rush of certification before then."

it one of Shanghai's most pleasant areas – and a tourist attraction in its own right – in sharp contrast to the unfriendly blocks surrounded by traffic that comprise many Chinese developments.

"It's more common in China to raze and build new, but 4,000 years of continuous history is important to preserve," says Chan.

Chan is a keen advocate of sustainable development and says sustainability is part of Shui On's developments from the beginning. "It is less expensive and more effective to be sustainable from the beginning. If you weave these ideas in at the concept stage then it drives the efficiency of the whole project. It's harder and more expensive if you do it post-construction."

US data suggests it costs 2% extra to develop a building to LEED gold standard. Chan reckons Shui On's costs are lower than that, but admits that it is hard to judge because "sustainability is ingrained in the process; we don't have an 'unsustainable' plan to compare it with".

One of Shui On's latest projects, Foshan Lingnan Tiandi, is being developed on a 650,000m² site including 22 historic buildings, which need to be protected and integrated into the development.

Chan says Shui On has become much better at sustainable development as it has gained experience and adds that "progress is incremental".

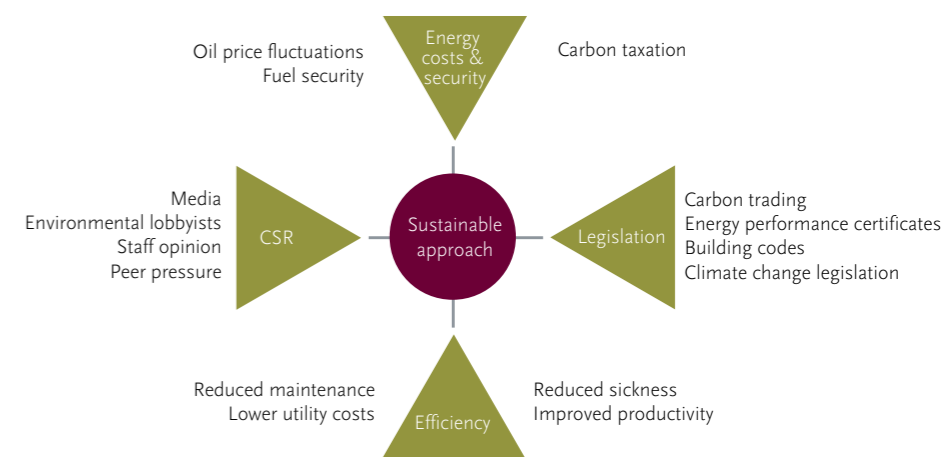
Designing in sustainability

CBRE's Shen points out that it is cheaper and more efficient to take an integrated approach to design and to incorporate sustainable development practices right from the start of a project, rather than to take the traditional phased approach. "It's best to start with everyone in the room," he adds. "You spend longer at the planning stage but there is a positive trade-off."

Of course, even in a region growing as strongly as Asia Pacific, new buildings make up only a tiny proportion of the total stock, so the overall improvements to environmental standards they make are marginal. ▶

Driving factors for adopting a sustainable approach in built environment

EC Harris identifies pressures from four distinct areas that are driving the adoption of sustainable buildings



Source: EC Harris

COOL SOLUTIONS FOR SAVING ENERGY

In much of Asia, the biggest challenge in creating an energy-efficient building is managing heat and light.

Sarah Lee, a senior associate director at architect Benoy, says: "Air-conditioning can account for up to half a building's energy use," so any techniques that reduce the need for air-conditioning will inevitably save money in the long run.

Another factor, particularly in hotter countries in Asia, is the heat-island effect, where large and tall buildings become significantly warmer than the rest of their surrounding area.

In many buildings, there is a forced trade-off between light and heat: too much glass and the building heats up unacceptably, too little and it is gloomy and forced to rely on artificial light.

Permanent shades on the outside of buildings, known as brise-soleils, reduce heat build-up while still allowing reasonable amounts of light in.

At CapitaLand's Raffles City mixed-use development in Shenzhen, Benoy has designed a number of features to mitigate

heat effects. These include: energy efficient lamps with low wattage bulbs, which produce less heat; green roofs on buildings, to mitigate the heat-island effect; and a significant proportion of planted open space.

The building also uses solar panels, a requirement driven by the Shenzhen government, although sustainability professionals disagree as to whether solar panelling is in fact particularly green, because of the materials used in its production. Nonetheless, 80% of the roof area is covered in solar panels.

Large blocks of development also cut down a city's airflow, so the individual buildings in the project sit on pillars to allow wind to move through the development.

At Swire Properties' and Beijing Sino Ocean Land's Indigo project in Beijing, chillers have been installed that use cheaper night-time electricity to make ice, which then cools the building during the day.

Meanwhile, heat recovery devices will be installed to capture residual heat energy from return air ducts, thus maximising energy efficiency.

However, it would be wrong to consider older buildings a lost cause. Shen says CBRE in the US has advised on a green retrofit for a 30-year-old building.

“While the amount of new construction in Asia is phenomenal, we can help owners of that vast amount of existing stock to enhance asset value through better building performance, and via LEED for existing buildings certification, which positions properties to compete for tenants seeking green building occupancies.

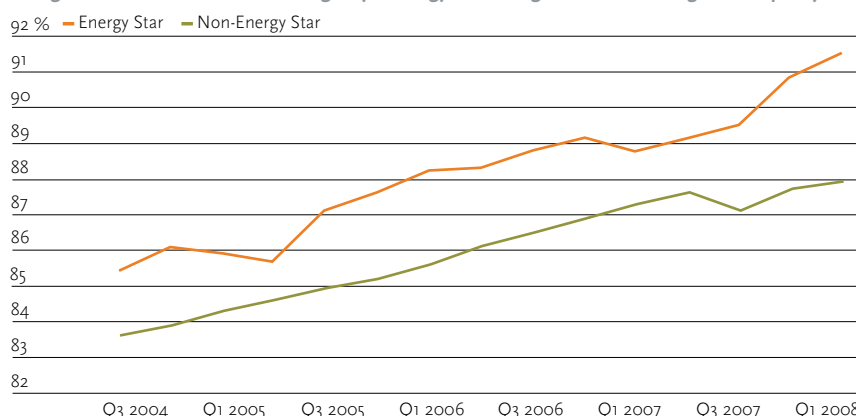
“This is crucial to helping the real estate industry make meaningful reductions to its environmental impact and move our cities towards a more sustainable future.”

Other green retrofit projects in recent years have included fitting New York’s 80-year-old Empire State Building with new windows that retain heat better, which will contribute to a 40% cut in energy use. In Asia, the Taipei 101 tower last year received LEED Platinum status, seven years after completion. Retrofitted energy-saving measures will save \$1.2m a year.

Being greener is not necessarily more expensive if developers refresh rather than rebuild. In Hong Kong, China Resources Land has sustainably refurbished the China Resources Building in Wanchai at a cost of HK\$600m (\$77.3m), much less than the cost of redeveloping the site and without the

Occupancy rates for energy certified/non-certified buildings, Q3 2004-Q1 2008

Buildings with the US Environmental Agency’s Energy Star rating have achieved higher occupancy rates



Source: EC Harris

loss of rental income during construction. The retrofit will cut energy costs by around 15% and water usage by a third.

Multinationals drive demand

While sustainable development is in the hands of the developers, demand for green buildings continues to come from occupiers and governments. Multinationals with US and European headquarters demand energy efficient buildings. There are conflicting data about whether they will pay a premium to occupy green space, but data from the US suggests that energy efficient buildings do

have better occupancy rates (see chart above).

Real estate investors are also more concerned about sustainability than they were previously, although few insist on energy-efficient buildings and none are prepared to pay a premium for them.

EC Harris’s Marriott says: “If two otherwise equal buildings have differing green credentials, the green building will sell quicker, but if it produces less income, the sustainability will not matter so much.”

However, he adds that in practical terms, investors appreciate that sustainability is the avoidance of obsolescence.

AUSTRALIAN FIRMS PAY THE PRICE FOR BEING GREENEST IN ASIA

Australia is one of Asia Pacific’s leaders in terms of sustainability, but the weight of legislation has become both a burden and a confusion for the real estate industry.

Dale O’Toole, national sustainability manager at Savills Australia, says: “Sustainability is always in the news but is a particularly hot topic in Australia at present, with a number of major changes and initiatives on the horizon.

“The introduction of a carbon tax next month has provoked fierce debate inside and outside of Australian politics. The top 500 companies are emitting more than 25,000 tonnes of CO₂ per year – equating to around 60% of Australia’s emissions – and will be required to purchase

permits at a cost of \$23 per tonne of CO₂.

“An increase in the cost of electricity in the order of 10% is likely shortly after the introduction of the carbon tax, with a knock-on effect for the price of most goods.”

Naturally, says O’Toole, the property and construction industry will feel the effect, with the cost of building materials and waste costs expected to rise. For landlords, there could be an associated increase of 2% in building operation costs.

In a drive to further reduce emissions, the Australian government last year launched the Commercial Building Disclosure (CBD) programme. Since November, owners of office buildings larger than

2,000m² have been required to obtain and disclose a Building Energy Efficiency Certificate (BEEC), including an energy rating, an assessment of tenancy lighting and general energy saving guidance.

Shopping malls are expected to be added to the programme in the future.

But Australian legislators are offering a carrot as well as the stick; in the push to improve the environmental performance of existing buildings, there is no shortage of rebates, incentives and low-interest green loans on offer to commercial property landlords and managers.

The concern over expected increases in energy costs and the associated potential loss of tenants to greener buildings is

driving landlords to consider sustainability initiatives on low-performing buildings.

“However, many would argue that it is difficult to keep up to date with these initiatives due to their multiplicity at local, state and federal government levels, and their complexity and changing nature,” says O’Toole.

Australia is taking a lead in embracing the broader aspects of sustainability. The Green Star-Communities rating tool, soon to be launched by the Australian Green Building Council, will deliver a set of national principles for sustainable communities, examining elements such as infrastructure, buildings, public areas, people, ecology, economy, governance and services.