

ARCHITECTURE



Go green: the new future of skyscrapers

A new tower in Hertfordshire claims it will be Britain's most eco-friendly high-rise, reports *Chris Beanland*

The high rise is going green. It seems hard to believe that a tall, hulking block made from huge amounts of material and consuming huge amounts of energy could ever be anything other than bad for our fragile environment. Yet conventional wisdom is being challenged by architects and scientists who are attempting to foster a new breed of "eco towers". Milan's Bosco Verticale, designed by Stefano Boeri, translates as "vertical forest". It is a celebrated residential tower which its designers have made to be literally green

by covering it with plants. This "greening" of towers has become a recurring architectural trope in recent years, and sometimes it can signal style over substance - in the case of the Bosco Verticale's many imitators. The brand new Shanghai Tower, by the architects Gensler, claims to be one of the world's greenest skyscrapers, as well as one of the tallest. Its green features include rooftop wind turbines, rainwater collection and re-use, dual-layered insulation, energy-saving devices, and combined heating and cooling - giving it a Leadership in Energy and Environmental Design (LEED) platinum rating. Back in England, the team behind The Beacon in Hemel Hempstead are trying to go one better - and they reckon they've got the recipe for

the greenest tall residential building ever seen in Britain. "It should generate as much energy as it needs for its consumption - so it essentially becomes self-sustaining," explains Ambi Singh, commercial director at Lumiere Developments.

"It's the elegant combination of renewable-energy generation with energy-conservation strategies that creates a building that has been modelled to use less than 80 per cent of the heat and electricity requirements of a normal residential tower." The building's exterior will have the highest density "solar farm" in the UK. "Solar panels are elegantly incorporated into the external architecture of the building, creating a 'solar ledge' that wraps around each level of the building, on the outside of the balcony of each apartment," says Singh, who has experience in the energy as well as architectural sector.

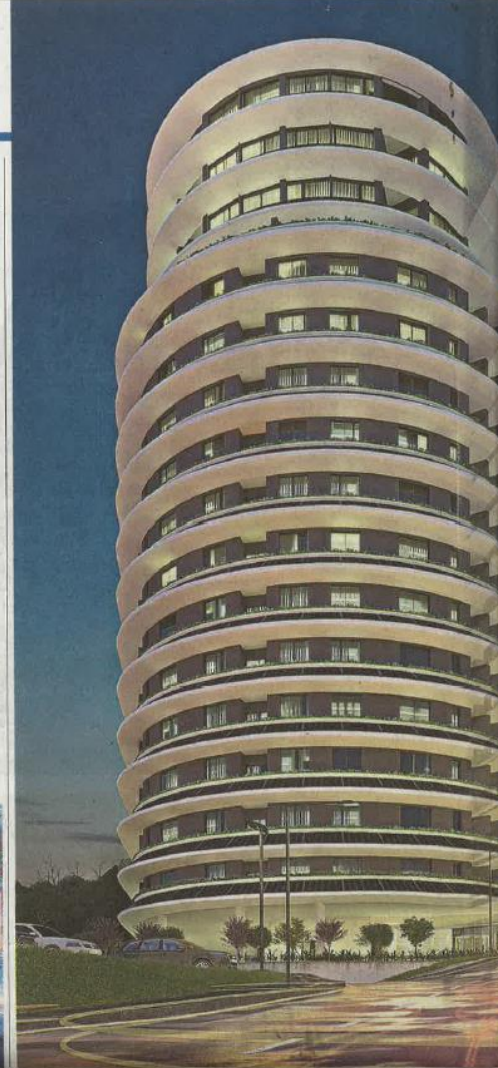
With power generated from those solar panels and by using the heat of the building, residents at The Beacon will get free electricity and hot water for five years. Add in LED lighting, triple glazing, natural ventilation systems and heat harvested from the ground, and you have a block that uses and loses much less heat and energy than is usual. "Think of peak load in the morning when everyone has a shower. Sixty per cent of that heat will be recovered from the shower system - that's usually just all lost," says Singh.

They've even thought of the noise problems that plague today's densely packed apartment buildings. "Imagine someone's playing Def Leppard too loud - we make sure the walls and floors are well insulated to take away that noise," says Singh.

Recycling points are on each floor. And as for water? "Potable and

Lean and green: builders of the Beacon Tower in Hemel Hempstead, right, say it will be the most eco-friendly tall building in Britain; the Shanghai Tower claims to be the most eco-friendly skyscraper in the world, top right

Modern living: a bedroom inside The Beacon, the eco-friendly tower in Hemel Hempstead, right; on the roof terrace, top left





Live in an eco tower

The Beacon
There will be 272 apartments in Hemel Hempstead's **The Beacon** - a mixture of studio, one, two and three-bedroom apartments and penthouses, with prices starting from £217,000 (thebeacondevelopment.co.uk).

Strata SE1
The design of this building in Elephant and Castle, south London, is controversial. It won the CarbonClic Cup

for ugly buildings in 2010. Despite its claims to be eco-friendly, its rooftop wind turbines don't always seem to be spinning.

There is a three-bedroom flat in the Strata SE1 building for £985,000 with Chase Evans. (chaseevans.co.uk)

Bosco Verticale
A two-bedroom flat in Milan's **Bosco Verticale**, or "vertical forest" is listed at £1.32m by PrestigeMLS (prestige-mls.com).

that mixed technology with supposedly green credentials. In the Sixties, Jellico proposed a plan for an even grander new eco town near Staines, Middlesex, of connected tower blocks called *Motopia*, where cars would, incredibly, travel on the roofs of the buildings - all of which were to be set in generous parkland. This utopian idea, like something from a JG Ballard novel, was never realised.

Transport has also been a big part of *The Beacon's* *modus operandi* - electric cars and electric bikes will be available to residents. The car park will be automated and your car parked by a robot. "We have this wonderful underground parking solution - it's pretty cool, and it's also in the Shard," says Singh. "You don't have so many emissions down there as it's automated - and it takes up less space."

Eco towers are spreading. A fad perhaps, but not necessarily a bad one. Stefano Boeri is due to build another *Bosco Verticale*, called *La Tour des Cedres* in the Swiss city of Lausanne. Like his Milanese project, this tower will be covered in coniferous trees, in order to trap dust, absorb CO₂ and release oxygen.

"Bringing trees into the sky of a city means fighting the battle against the production of CO₂ in the place where it is generated most. It's like fighting the enemy in its own territory," says Boeri. "With our projects we have proved that a tree could grow in the sky of a city in the same way it does on the ground."

In Calcutta, the high-rise *Astiva* residential building has just opened - the first time the Indian Green Building Council has awarded a Green Homes Gold certificate to a building in India's second-largest city. Existing towers can be retrofitted to be greener too - the 1967 tower block *Austin House* in Walsall, in the West Midlands, was transformed three years ago with insulation, solar panels and heat extracted from the ground - all reducing the amount of lost energy from the building.

But can a tower block ever really be eco-friendly? Or are we seeing some cheeky "greenwashing" on the part of developers?

"There are many reasons that high-rise living is green. We travel much shorter distances going vertically than horizontally, and lifts are probably the most energy efficient means of transportation on Earth except for a bicycle," says Lloyd Aiter, adjunct professor at Ryerson University in Toronto and design



Verdant: the Bosco Verticale, or vertical forest, in Milan, with trees growing within

editor of the eco-architecture website *Treehugger.com*. "When you have a lot of people living together in tall buildings, then a bicycle is all you really need because there is enough of a population density to support stores, public transit and offices."

But don't go too high, he warns. "Buildings lose resilience, such as when the power goes out you lose water and fire protection because the pumps don't work, and it's too far to walk down and up the stairs. High density is green and good, but you can have too much of a good thing."

What about the huge amount of energy expended to make the concrete, steel and glass for a

building? Singh says the Beacon's concrete will be produced as near as possible to the site and also that 35,000 tonnes of excavated chalk and clay will be used to infill non-load-bearing walls in the building. That's rather than the usual practice of carting all that spoil away in hundreds of petrol-guzzling lorries.

"There's a bigger agenda here," he says. In the UK, air pollution kills 35,000 people prematurely every year, and across the world that number is 6.5 million.

"Our logic is that the tools are there and we must try to use them," says Singh. "We feel morally compelled to demonstrate solutions, to say that you can do the right thing without impacting lifestyle. It's very low risk, proven technology."



Property of the week
The ultimate luxury retirement home

More and more people want to downsize and retire in luxury, but still live in the bustle of the city, writes *Cristina Criddle*.

Bankhouse is an exclusive development in the Corniche building, on London's iconic South Bank, designed for over-55s who have no desire to slow down.

The *Bankhouse* is more boutique hotel than retirement home, where residents can enjoy 24-hour housekeeping and personal care. Extra services offered include managing bills, collecting and ordering medication and daily health and wellbeing checks by staff.

There is also a restaurant, bar, club house and garden terrace where the young at heart can socialise. The facility hosts activities from cinema clubs to rumba classes in one of the capital's most desirable postcodes.

The 36 one- and two-bedroom apartments are on the upper levels of a 14-floor tower, and it is just a 15-minute walk away from Tate Britain.

The apartments have views of the Thames, the Houses of Parliament and the Shard. The Oval and Royal Festival Hall are also within easy reach by foot or public transport.

Launched this month, the open-plan spaces have underfloor heating and modern living areas with sleek new fixtures.

Fitted with a mix of Scandinavian flooring, ceramic tiles and carpeted flooring, the apartments have light and airy features - most containing balconies and chandeliers.

A one-bedroom flat on the ninth floor across 589 sq ft is on the market for £565,000 with *Bankhouse* (0344 800 3963; bankhouseSE1.co.uk).

non-potable water consumption is significantly reduced by use of a grey-water recovery system, which collects rainwater both at the 17th-floor communal roof terrace level as well as at each solar-ledge level; the roof gardens will have a large-scale water attenuation tank - then water will be pushed through a filtration system to remove contaminants, so all this water can be reused for washing clothes or flushing toilets.

Intriguingly, the 17-floor tower - designed by eco architects Wardman Brown of Leyburn, North Yorkshire - is popping up not in London but in the Hertfordshire commuter town of Hemel Hempstead. The area was planned as a new town in the Forties by the late Sir Geoffrey Jellicoe - who was himself a pioneer of architecture

CHRISTOPHER YOUNG



THE BEACON
EXEMPLAR LIVING



LUMIERE
H&K