



Architecture | Green by design

Environmental architects revise the world's skylines

The drive toward sustainable development is likely to alter the skyline of the world's cities in the decades ahead, according to the Paris-based architect Jacques Ferrier.

"Already, 50 percent of the world's population lives in cities, and the number of inhabitants in about 30 of them exceed 10 million," says Ferrier, who will address the World Business Districts Summit for Sustainable Development on Feb. 14. "Many more will converge on the major conurbations, so we need to find solutions that can cope with this density of population."

Ferrier is convinced that the answer lies in intelligent, environmentally friendly towers, particularly mixed-use ones that combine offices with homes or even hotels. "This way, the use of transport to carry people to and from work is minimized — elevators consume less energy than cars," he notes.

But when he says towers, he does not mean super-tall structures. "Except for high-rise business districts like La Défense, buildings of 300 meters [984 feet] and more are passé," he says, "even though they are still springing up in Shanghai and Dubai." For him, the ideal height for Paris is about 150 meters and the maximum 200 meters. "A tower of 250 meters is just as expensive and complicated to build as one of 560 meters," he says.

He cites two examples of the way ahead: Norman Foster's 170-meter controversial

"Gherkin" in the City of London and Jean Nouvel's 140-meter Torre Agbar in Barcelona.

Six years ago, Ferrier decided to make sound ecological principles a fundamental ingredient of the plans produced by his 30-architect practice. He began by designing a Concept Office in partnership with Electricité de France in 2004, and then conducted research in tandem with the leading French cement manufacturer Lafarge.

The result was the prototype Hypergreen Tower, which is based on an exterior prefabricated concrete crisscross structure parallel to the façade. The orientation of the building and the number of crisscrosses are determined by the direction of the sun and the climate. "Gone are the days when towers had four identical sides regardless of whether they faced north or south," he says.

The Hypergreen Tower is 50 percent to 70 percent energy self-sufficient through photovoltaic panels installed on the south side, a water-recycling system and cutting-edge insulation materials. The biggest technical problem was to ensure that the joists between the structure and the façade were strong enough to allow maintenance cradles to move about freely. "This would not have been possible if Lafarge had not developed a special concrete," he adds.

For the architects, one of the biggest challenges was to design an exterior that could filter light, heat, noise or air in or out as

the seasons change. And then there was the question of shape. Ferrier and his team opted for an oval to provide natural light and ventilation for workstations in the narrower part of the building and leave the center for ancillary services.

Although a consensus has emerged in recent years that sustainable development is essential for preserving the planet, not all investors and owners are ready to make the jump from more traditional concepts, Ferrier says. "They sometimes hesitate, because they are not sure that it will work."

A major French financial body has no such doubts. It will locate its headquarters in France's first Hypergreen Tower, to be built in the Paris suburb of Issy-les-Moulineaux with the full backing of Mayor André Santini. Planning permission is not expected until after the French municipal elections in March, but opinion polls say that Santini will be re-elected. "It is vital to have political support for such projects," notes Ferrier.

He will score another first for France when he unveils a scale model of a future Signal 309-meter mixed-office/apartment tower at the Mipim international real estate fair in Cannes in March. The tower has been designed for the French subsidiary of Hermitage, the largest Russian developer, and is destined for La Défense. Hermitage has already built a mixed-use block in Moscow.

"There are many advantages to such towers," Ferrier says. "The heat or air-conditioning from offices during the day is absorbed by the apartments the rest of the time, which increases energy efficiency and reduces individual residents' bills." Also, gardens and service staff are paid for by the corporate occupants, he adds.

Ferrier is also participating in plans by Mayor Bertrand Delanoë of Paris to brighten up suburbs on the perimeter of the capital. "These areas have no ancient monuments, so the idea is to build two or three towers near each station to give them a cultural landmark and their postcards of tomorrow," Ferrier says.

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Jacques Ferrier's Hypergreen Tower (transposed here to Shanghai, left of center) is scheduled to be built in the Paris suburb of Issy-les-Moulineaux.