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Green revolution

INDIAN ARCHITECTS ARE PUTTING THE ENVIRONMENT FIRST AS THEY GO ON A BUILDING SPREE, SAYS **AARTI DUA**

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When architect Vidur Bharadwaj announced that he was going to design only green buildings 18 months ago, associates at his firm Design & Development thought he'd gone crazy. "But I said let's do it," he recounts with a grin.



Rahul Kumar (Pix by Jagan Negi), head, Rajinder Kumar Associates, says it's a challenge to design a building that's green and yet meets the user's requirements as with the hospital he's doing for Fortis (top)

Bharadwaj's bet paid off. Sure enough, his practice dipped by 85 per cent initially. But his instincts proved right, and now, his practice has quadrupled. "We're offered three projects a week today, though I don't accept all. We're very choosy," says Bharadwaj.

Bharadwaj isn't the only Indian architect who's painting himself in vivid green hues nowadays. After all, India's witnessing a huge building boom. And a lot of it is going green. So you have India's hotshot architect Hafeez Contractor, who even wants city authorities to think green. "People are talking about buildings today. I've been talking about our cities for ages, saying we're not making optimum use of land. We've got to go high to leave more land for greenery below," says Contractor, who has argued for taller buildings in Mumbai.

If Contractor is trying to turn his trademark steel-and-glass structures green, in Baroda, Karan Grover, who did India's first rated green building, the CII-Sohrabji Green Business Centre at Hyderabad in 2003, is drawing on traditional green elements such as courtyards and concrete screens.



One thing's clear — the world of architecture is going green with a vengeance. Says C.N. Raghavendran, partner of Chennai architectural firm CR Narayana Rao (CRN): "Awareness of sustainable practices has grown phenomenally." Raghavendran has the blueprints for several green infotech campuses on his drawing board currently.



The architects who're going green aren't fiery revolutionaries. They have to turn out offices that meet modern business demands. But they're determined to provide this while staying as green as possible.

That's what Delhi-based Rajinder Kumar Associates's (RKA) Rahul Kumar did at the ITC Green Centre. And, it's also what Kapadia Associates's Kiran Kapadia is doing at Hindustan Unilever Limited's (HUL) new office complex in Mumbai.

Karan Grover (top) used traditional architectural elements like courtyards and screens in India's first green building, the CII-Sohrabji Godrej Green Business Centre at Hyderabad



So what makes a building green? Well, it must save energy and water, use recycled materials and reduce environmental degradation. Indiscriminate use of glass is a no-no, for instance. Or at least it must be high-performance glass that lets in light but not solar heat.

Yet, green doesn't necessarily mean vernacular architecture with exposed brickwork. Rather, green buildings are as swanky as any other building.



The difference lies under the skin and it isn't always visible. So basics like site orientation are important to maximise on daylight while reducing solar heat intake, for instance.

There's a lot of high-tech too. So Prem Jain,

chairman, Indian Green Building Council (IGBC), and of Spectral Services, a leading building services firm, simulated environmental conditions before building Spectral's office at Noida last year, for instance. The IGBC is certifying green buildings under the Leadership in Energy and Efficiency in Design (LEED) guidelines created by the US Green Building Council (USGBC) and adapted to India. Others are using The Energy Research Institute's (TERI) GRIHA rating.

Take a look at the buildings that architects like RKA's Kumar are creating. In his first green building, the ITC Green Centre in Gurgaon, which won a platinum rating in 2005, the challenge was to do a "normal corporate building" that was green.

"ITC was very sensitive about its brand. Our approach was to make it as plush as any corporate building, and yet be green," says Kumar. He did that and managed 50 per cent savings in energy too.

Now, Kumar says, "As a practice, we've started looking at every building as green." So at Oil India Development Board's (OIDB) corporate office in Noida, Kumar has designed a tall tower at the back of the plot with a lower three-storey block in front, and a central courtyard in between.

"By taking the tall tower back, we've got perfect north-south orientation. And because it's slim, it is naturally lit and opens up the courtyard too," he explains.

Kumar's also designing a green hospital for Fortis in Gurgaon under the GRIHA rating. Besides, he's doing six green office parks across Mangalore, Gurgaon, Noida and Faridabad. The challenge here is to design for unknown end-users — because you don't know which companies will be buying space in the parks — and yet ensure they adopt green principles, he says.



Hafeez Contractor, Pix by Gajanan Dudhalkar (top) is trying to turn his trademark glass-clad buildings green as in ONGC's new corporate headquarters

Bharadwaj, who is designing 35 million sqft of green building space, has faced similar problems when spreading the green Bible. For instance, when he was putting together the plans for his latest project Green Boulevard, an IT tower in Noida, he had to use all his persuasive skills on the developer.



"The challenge was to convince the developer 3C to go green since the savings in energy and water go to the tenant and not him," he says.

But the benefits of going green can be substantial, Bharadwaj points out. In his first green building, the Wipro Software Development Centre at Gurgaon — which won the LEED platinum rating in 2005 — Bharadwaj managed to bring down energy costs by 52 per cent.



"We achieved savings in energy and water without sacrificing on employee comfort," says Niranjan Kumar, general manager, civil infrastructure, Wipro.

Now Green Boulevard is planning to apply for carbon credits. There are three towers of five, seven and nine storeys here. Bharadwaj has used their varied elevations to provide shade. Again, he has put in a courtyard and has used water bodies to cool the micro-climate.



(From top) C.N. Raghavendran is designing green-rated software campuses like Infosys' campus at Jaipur and Hindustan

Moreover, to reduce the air conditioning load, Bharadwaj is employing "free cooling", which means that from November to January, the air conditioners will filter and circulate cooler air drawn from outside. "So the occupants get free air conditioning for three months," he says.

Construction Company's IT park in Mumbai

Bharadwaj is now designing green IT campuses for Patni Systems at Noida and for Wipro at Greater Noida and Mysore. Plus, he's doing an IT park, Oxygen, for 3C. Bharadwaj, who often uses traditional architectural elements, says, "The heart is traditional while the form is modern."

Indeed, green buildings aren't new to India. Architects like Balkrishna Doshi and Ashok Lall have promoted sustainable buildings for decades and so has Grover, who was an early convert.

In fact, Grover's CII building in Hyderabad, which became the first building outside the US to get a LEED platinum rating in 2003, was a culmination of all his earlier efforts.

Grover is inspired by traditional Indian architecture, especially the 14th century abandoned city of Champaner in Gujarat, which he helped make a World Heritage site. "I picked up my knowledge at places like Champaner. It seems that what we were doing was always green but it wasn't called so," says Grover.

So Grover incorporated courtyards, screens and water bodies in the Institute of Plasma Research in Ahmedabad in 1993. Courtyards allow hot air to rise and when hot air passes through the small openings of concrete *jalis*, it cools down. In the Institute of Quality in Bangalore in 2000, he used traditional wind towers to lower the inside temperature by 10C.

The CII Green Business Centre, then, had all these elements and achieved 50 per cent savings in energy and 32 per cent in water.



Spectral Services' corporate office in Noida

Grover has some 16 green projects currently, including Shell's corporate office at Hazira. This will be a zero energy building as Grover will use energy generated by Shell's plant on the same site inside the office. "With every building, we up the stake," he says. In Calcutta, Grover has designed the Synthesis Business Park at Rajarhat. And he's doing six green hotels in Oman too.

It may seem unlikely but Contractor shares Grover's regard for traditional practices. So he rues that Indians seldom use double cavity walls for insulation, verandahs and large awnings today.

"Green is something we always did, till we discovered glass 10 years ago. Now we're rediscovering it. It's like Yoga — it goes to America, they refine it and then teach it to us," says Contractor.

He believes his early work like the buildings at Hiranandani Gardens in Mumbai, qualify as green. Contractor's now doing ONGC's corporate headquarters, Rajiv Gandhi Urja Bhavan, in Delhi. It's a swank circular all-glass building, but with a two-skin wall. So, planters will hang in between the walls and act as a shading and cooling device.

IGBC's Jain believes green buildings are an imperative. "We have to go green now otherwise it will be too late," he says. So he ensured Spectral's new corporate office in Noida was green too. The four-storey building is day-lit, discharges no waste and water (since there's a sewerage treatment plant and rainwater harvesting system) and uses 60 per cent less energy.

Moreover, at IGBC, Jain has convinced developers to go green. "Till last year, developers thought green was just a fad. But now younger developers especially are taking to it in a big way," he says. So 225 new buildings covering 220 million



Architect Kiran Kapadia, Pix by Gajanan Dudhalkar (top), who has designed the Lodha i.Think Techno Campus in Mumbai (above), believes it's important to understand how buildings perform

sqft have registered for LEED ratings today. Jain wants to make it one billion sq ft by 2010.

For architects, going green is an additional challenge when putting up big projects. After all, they also have to meet complex business needs, especially in software firms, which require large floor-plates. Firms like CRN have taken up the challenge though.

“Software firms have become very power-intensive because of their sheer scale and power-hungry servers. That’s why they’re at the forefront of the green movement today,” says Raghavendran.

CRN is working on over 10 green projects including several IT campuses. There’s Infosys Technologies’s 40-acre Jaipur campus. Here, Infosys wanted 100-150 workstations together, not possible in slim daylit buildings. So Raghavendran designed the building to provide this and yet ensure enough daylight penetration.

“By combining the wisdom of the old with modern technology, India can make a big contribution,” feels Raghavendran. CRN is also doing green buildings on Infosys’s and TCS’s Chennai campuses, and an IT campus for NIIT at Greater Noida. In Mumbai, it has designed an IT park for Hindustan Construction Company (HCC) and the latter’s corporate office too.

Meanwhile, Kapadia has convinced developers like the Lodha group in Mumbai to go green with its Lodha i.Think Techno Campus and its corporate office, Lodha Excelus. That’s apart from HUL’s new office complex at Andheri. “We’ve always looked at how buildings perform. As a norm, we incorporate green features. So the rating is not the raison d’etre for doing it,” says Kapadia.

In a tightening market, Kumar says it will be challenging to convince developers to make green buildings, which are costlier by five per cent to 15 per cent. But the architects won’t stop trying to turn our cityscapes green.



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