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GREEN DIVERSITY

MULTI-FACETED GREEN DESIGN AIMS TO BE GENTLE ON THE ENVIRONMENT AND IMPROVE THE QUALITY OF LIFE

BY CAROL FERRAO

With trends like Zero Waste, Green Living and Sustainable Fashion, we notice that the world is getting extremely cautious with its use of natural resources. Architecture and design is instrumental in encouraging a Green way of living, too, with its innovative solutions to construction and planning. Whether it's going back to the roots or using modern technology, today Green Design is diverse in its principles and execution. But it's interesting to study the unifying principles of different sustainable design strategies and how they are shaping modern cities and spaces overall.

"Sustainability in design, as a concept, has evolved extensively over time. Initially, ratings and certifications would be awarded on the basis of energy consumption patterns of the a project. However, in today's context, it has become essential to design spaces that aid liveability and user wellness, in addition to reduction of resource consumption," shares Nilesh Dongre, vertical head, Developer Spaces, Edifice Consultants.

There is more to Green Design than a building's initial impact on the environment, which is ensured to be as minimum as possible. But its impact through its complete lifespan is also crucial, with other factors like how it affects the quality of life of its inhabitants and brings them closer to nature by facilitating the elements of air, light, and greenery. "Such design also encourages us to live in harmony with nature, from within

and outside, and is always a good strategy, hence resulting in good design," says Amit Aurora, principal architect, Group DCA, adding that optimisation of embodied and operational energy are two measurable parameters for Green Design today. When these factors are taken into account, it can cut down the impact of a building on the environment throughout its lifespan.

With the aim to protect the environment while simultaneously creating the best inhabitable space for the people, the Green movement has come up with varied design strategies. Some rely exclusively on modern technology and innovative materials, while others take the more traditional route and juxtapose it with inventive ideas by upcycling materials.

Here's a sneak peek at four distinct Green strategies:

ORGANIC SUSTAINABILITY

In Netherlands, a new urban vision is being developing in Helmond's Brandevoort District by UNStudio. Pegged as The Smartest Neighbourhood in the World, the urban planning relies on latest insights and techniques in the areas of circularity, participation of (future) inhabitants, social cohesion and safety, health, data, new transport technologies and independent energy systems. But what stands out most about this projects is that the design team is consciously staying away from a predetermined plan and are instead adopting a flexible grid that will be gradually developed per users' demand.

1. IHA residence by Willmakers champions the use of natural as well as upcycled materials.



Over the next ten years, the Brainport Smart District will develop 1,500 new homes and 12 hectares of business premises. The development will be characterised by the application of the latest technologies and knowledge in order to achieve a sustainable, circular and socially cohesive neighbourhood that enjoys joint energy generation, food production, water management, joint digital data management and revolutionary transport systems. Design and construction of this district will be a step-by-step development instead of a pre-planned urban layout. This new district aims to contribute to the creation of a sustainable and unique living concept, one which embraces experimentation and 'learning by doing'. In this project, Green Design will rely on technology, research and will take on a more experimental form, impacting a vast stretch of land.

CERTIFIED GREEN

The 25-acre Bhartiya Centre of Information Technology in Bengaluru, designed by Edifice Consultants, gets a Green tag owing to careful planning and modern technology. The campus comprises three built-to-suit towers around a five-acre green space that is pedestrian-friendly and free of vehicular movement. By creating an unimpeded pedestrian access, the design facilitates networking and chance interactions, where the campus acts as an urban oasis.

Despite being an IT campus, the buildings are designed to consume less electricity. One of the Green strategies is



2. Uprooted trees and waste wood from sawmills are used extensively to design the minimalist furniture for the residence.

3. Washing machine meter base plates are welded together to create patterned grills in the house.

4. The continuous string of steel-reinforced bamboo support a staircase, creating a semi-open place in the design scheme.

the use of cost-efficient modular panel façade on each of the three towers, thus, maximising ingress of natural light and cutting down on heat load. "Combining high energy savings with consistent per-unit saleability, the design sets a precedent for sustainable large-scale developments in the country," the design team notes. Centralised circulation systems, extensive rainwater harvesting and minimised cross-campus

commuting time are some of the other sustainable features in play in this project. The first tower – one among two to be completed – has already received a Gold LEED rating.

Managing energy needs plays a significant role in Green certified projects. Dongre explains, "Largely, Green Design strategies are developed as per the ever-changing needs and requisites of the users and the environment. However, as I see it, the most efficient way to implement Green Design strategies is to focus predominantly on reducing the energy demand at the outset. The best possible strategies include – allowing for naturally-lit spaces, controlling HVAC losses and maintaining air quality for user comfort."

GREEN NEWS FROM AROUND THE WORLD

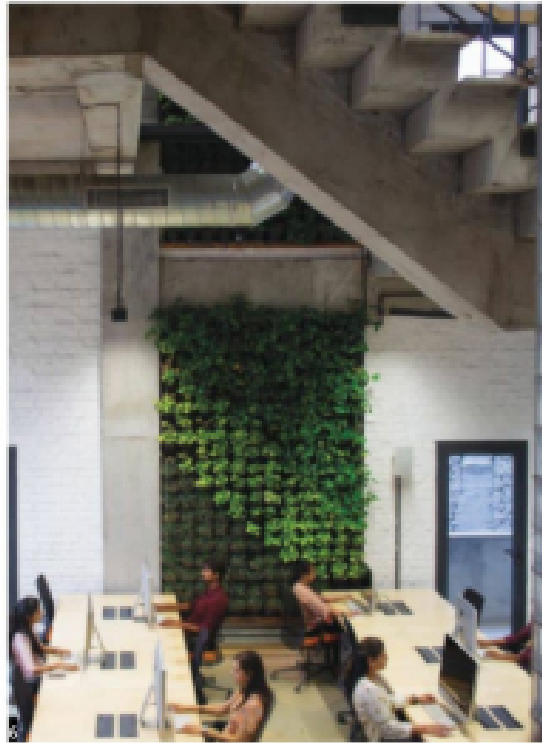
New York City mayor Bill de Blasio is set to ban the construction of glass and steel skyscrapers, in view of the climate change crisis. He has found support in the architecture industry with a number of firms that are building high-rises in New York City. Instead of glass, they are opting for materials that have better eco-credentials.

Rwanda's largest publicly-funded project, Bugesera International Airport is on track to be the first certified green building in the region. The net-zero emission complex will include a 30,000-sq-m passenger terminal, 23 check-in counters, ten gates, and six passenger boarding bridges.

Carlo Ratti Associati in collaboration with energy company Eni designed a pavilion for the Milan Design Week with mushroom as the structural material. Called the Circular Garden, it comprised a series of arches made up of mycelium (the fibrous root of mushrooms), rope and wood chips. After the exhibition, the temporary structure was shredded and the organic materials returned to the soil.

5. Communical Working Solutions Office in Saragam relies on a biophilic design approach to enhance human engagement with nature.

6. Group DCA has ensured that the Communical Office maintains direct and indirect contact with nature, coupled with modern resource optimisation strategies.





BIOPHILIC DESIGN

At Communiq Marketing Solutions Office in Gurugram, biophilia design approach by Group DCA endeavours to enhance human engagement with nature. This close link between nature and the employees hopes to promote happiness, good health and well-being. By extension, resource and energy efficiency was integrated into the design process from the very beginning and is reflected in the building orientation, fenestration, lighting design, air-conditioning and ventilation systems. The western face of the building is completely blocked with a massive wall and a layer of glass wool insulation and all of the windows are double-glazed to reduce the ingress of heat into the building, thereby bringing down energy consumption.

Green living walls in between workstations serve more than an aesthetic addition to the space. The vertical planters continuously refresh the environment and improve the air quality. Large windows, lined with planters, are designed along the northern and southern edges of the floor-plates too. The fenestrations open to beautiful views of the surrounding greens, while their careful placement and sizing ensures adequate daylight ingress. By surrounding the spaces with direct and indirect contact with nature, coupled with modern resource optimisation strategies, the design here shows how Green Design can improve human performance in a corporate set up.

UPCYCLING DESIGN

Materials contribute to the embodied energy consumption of projects the most. In Kerala, Wallmakers, founded by principal architect Vina Daniel, are championing the use of natural and upcycled materials consistently in their projects. IHA residence in Trivandrum showcases an innovative approach to building construction and materials that is also remarkably sustainable. For instance, base plates from washing machine motors are welded together to create patterned grills throughout the house. This not only encourages sustainable living and reuse but also adds to the beauty of the residence. Instead of



choosing fresh factory-made grills, the design promotes both upcycling of waste materials as well as serves as a medium of income for labourers. Uprooted trees and waste wood from sawmills are used extensively to design the minimalist furniture for the residence.

Often there are certain apprehensions attached to all-natural materials and their durability. Initially the idea of using bamboo for the façade was debated given the massive space it had to support, but this limitation was debunked. By reinforcing the bamboo with steel rods, a stable option was designed and a continuous string of bamboo forms the front elevation to the residence and also supports a staircase. The distinctive form of CSEB bricks (Compressed Stabilised Earth Blocks) has been used to create a rotating jali work to impart privacy to the bedrooms. Apart from the marvel the light creates, the consecutive polar arrangement allows ample ventilation.

IHA residence exemplifies that Green Design can be both earthy in its materiality as well as impressively innovative. Here low-tech construction methodology ensure the construction process is sustainable. ■

7. Designed by UNStudio, the Brijgopi Smart District hopes to achieve a sustainable, circular and socially inclusive neighbourhood.

8. At Bhartiya Centre of Information Technology, designed by Edifica Consultants, cost-efficient modular panel facade maximises ingress of natural light while cutting down the heat load.