Designing for a Sustainable World

Sustainable architecture is no longer a term used by architects and designers, the consumer now knows and demands it. We speak to experts in the space to understand the practicalities of developing sustainable buildings in India

By Jyotsna Sharma

MITU MATHUR,
Director, GPM Architects and Planners
"Architects must consider the WELL certification in addition to green certifications"

The concept of sustainability has become central to our way of life. It has permeated every aspect of our lives, from the food we eat, to the cars we drive, to the clothes we wear and even the homes we live in. We all know that the spaces we inhabit have a direct correlation to our mental and physical well-being. Post the pandemic, and as a result of it, we have become more aware, and many of us have redesigned the spaces we inhabit. This is not just limited to residential spaces but also to commercial areas. Sustainable architecture is the need of the hour.

Interestingly, a number of organisations that have office space in older buildings (built before the concept of green architecture and sustainability came into prominence) are working on redesigning the interior, installing energy efficient mechanisms, and focusing on water conservation and responsible waste management. And, this awareness is now leading people to reimagine spaces at the neighbourhood, town and city level.

Going Green

Green buildings are the future as they have a positive impact on the natural environment and also the inhabitants of the space. These use processes that are resource efficient and environmentally responsible, which last throughout the life cycle of the structure. Mitu Mathur, Director, GPM Architects and Planners believes that architects must recognise the importance of designing buildings that support the health and well-being of their occupants and must consider the WELL certification in addition to green certifications. They should also become more inclined towards finding solutions for the neighbourhood and not just be focused on isolated building projects.

In addition, architects should prioritise using sustainable building mate-

SMIRATI BHATNAGAR,
Head, Design and Strategy, Design Forum International
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rials, such as recycled or renewable materials, that have low embodied energy and reduce waste during construction. The design must be adaptable and flexible to accommodate changing needs over time, which can reduce the need for new construction and demolition, reducing negative environmental impact, believes Smirati Bhatnagar, Head, Design and Strategy, Design Forum International.

"Emerging from the idea of circular economies, and going back to the question of care, if we begin to understand the building life-cycle as a closed loop instead of a straight line, where the building and all its parts can be traded in cycles – being recycled, refurbished, and/or reused; a regenerative urban framework might emerge; one that is conscious of capital, energy consumption, and construction refuse, but is also resilient to the instability of the real estate market", says Ambrish Arora, Principal and Founder, Studio Lotus.

Net Zero Energy Buildings

While we are moving towards designing green and sustainable structures, the one thing we can immediately move towards is zero energy buildings. These are structures that have zero energy consumption and carbon emissions during their construction and operation. These buildings generate the amount of energy they require on-site using renewable resources. With support from the government on regulations regarding these India can see more zero energy structures coming up.

"By setting energy efficiency standards and building codes, the government can ensure that new construction and retrofitting of existing buildings meet minimum energy performance requirements and utilise energy-efficient technologies and materials. In addition, offering financial incentives such as grants and low-interest loans to builders and developers who adopt sustainable building practices can provide the necessary resources to support their efforts", says Bhatnagar.

Ambrish Arora believes that by adopting the idea of adaptive thermal com-

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fort, we can begin to create more localised benchmarks and metrics based on regional and climatic context. For instance, the threshold for comfort in Ladakh is vastly different from a region like Kerala. Thereafter we need to ensure that these localised benchmarks are widely advocated and enforced – perhaps by making them a part of the local building code in each region.

He says, a shortcoming to the widespread implementation of the current net-zero regulations is that these standards currently focus on air-conditioned buildings with highly engineered capital-intensive responses; whether it is through high performance envelopes or smart cooling / heating technologies. In the context of the subcontinent, this ends up excluding a majority of the built footprint. We need to start developing a set of guidelines focused on passive design and low cost, low-tech methods to ensure that a net reduction of energy consumption is achievable by all.

How Smart is Your Building?

Gone are the days when all you wanted was for your kids to be smart, now your building has to be smart too! Given how we have embraced technology across sectors, it is obvious that it would integrate with architecture. There are a number of smart buildings coming up but the key is to marry them with sustainable buildings. What we want are smart buildings that are sustainable too. For instance, would something like, The Line, NEOM Project in Saudi Arabia be possible for India? Aspects such as the potential displacement of local communities, and the potential environmental impact of such a large-scale development project need to be kept in mind, says Bhatnagar.

Talking about some of the challenges in building smart buildings in India, Mathur says, "One of the major challenges faced by smart building technology in India is cost-effectiveness and regulatory incentivisation. A government-adopted framework that encourages using smart technology to reduce environmental impact can be extremely beneficial to convince stakeholders and designers involved in a project."

Arora believes that we need smart design thinking and not smart technology. For instance, the interstitial, transitional areas in a building need not be air-conditioned, and could instead be passively cooled and naturally lit. These areas make up 25-30 per cent of the built footprint which means one stands to gain 25-30 per cent in terms of savings on operational costs.

This can also be achieved by regulating our thresholds of comfort. Even a 2-degree increase in set point along with the use of a fan can result in massive energy gains. Passive technologies are the way forward because they take the issues of environmental consciousness and climate action to the grassroots.

All in all, whichever way you look at it, it seems green is the way we are going when it comes to architecture. BW