

Future of living to include net-zero homes; post-pandemic buildings will be self-reliant with minimum resource consumption



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Synopsis

It's important to understand that every form of construction or architecture has some impact on the environment.

Luxury has more to do with the quality of space, light

and air than the mere application of materials & shagpile carpets. True luxury is one where the inhabitants of a space feel comfort and peace. Architects and interior designers assume a significant role in crafting homes that are not only architecturally responsible but also pay equal attention to interior décor that is thoughtful and not just visually appealing.

With the developing worry of natural issues, individuals are gradually changing their point of view and approach towards structure and putting resources into a home. Fundamentally, the sustainable **design** tenets we follow to create homes and in general for our projects are: minimise consumption, maximise efficiency, reduce waste, and generate energy. The essence of design is **sustainability**, and when you overlay it with context and other cultural sensibilities, the sustainable concepts get modified and tweaked but yet remain an integral part of the design process.

Sustainability in Architecture and Design

I think it's important to understand that every form of construction or architecture has some impact on the environment. Every building consumes natural resources and produces waste. And so, in some way or the other, it will impact the land it stands on, the light that falls on it, and the water and the air that flow through it. It will impact the larger living ecosystem that the land supports, from shrubs and trees to birds, animals and microorganisms, as well as the biogeochemical cycles that are tied to it.

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In that sense, being "sustainable" isn't just about adding certain design elements to a building. Instead, we need to rethink our fundamental value systems. At the current rate of consumption, the planet will soon become uninhabitable. So we need to evaluate what is truly 'essential' for sustenance? And how do these buildings connect to the outside world for the delivery of these services?

BY

Akshat Bhatt

ET CONTRIBUTORS

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Akshat Bhatt is Principal Architect at Architecture Discipline.



So a sustainable building must:

First, be oriented in a way that it optimises light and fresh air that enter the interiors. Plus, it must be designed with enough thermal mass to moderate internal temperatures by averaging out diurnal (day-night) extremes. This will limit the need for artificial lighting and air conditioning and hence, the building's energy consumption.

Second, be constructed in a modular manner to create an open-ended framework for flexible living, thus optimizing the use of land and space. For instance, open plan studio apartments could be designed with collapsible partition walls and roofs and flexible storage systems to allow residents to reconfigure their homes, enclosing and combining spaces or lending

them to the greens, as needed.

Third, be self-sufficient. It must harness its own power through geothermal energy or solar panels and PV arrays; and rely on harvesting rainwater or groundwater to meet potable water needs. It should also be able to farm its own food in grow rooms or kitchen gardens through techniques such as hydroponics and aeroponics.

Fourth, treat all dry and wet waste it produces on site so no untreated waste is released. The compost could be utilised as feed for farming, while all outgoing waste to the municipal grid should be taxed to incentivise responsible resource consumption.

Changing Patterns of Consumption

The bottom line is to reduce and change our patterns of consumption. Sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs. This is a fairly dynamic concept and needs thought and a considered approach.

Plastic bags were meant to be reusable, they were meant to be the spare bag in your pocket or in the boot of your car, and we all know how that turned out. Now, in this mad rush to be environmentally-appropriate, we rush to use or buy anything that is tagged as recyclable or biodegradable. That is a symptomatic solution, as anything you buy comes with even more layers of non-biodegradable packaging.

It's become especially easy to see how much packaging waste we generate every week when families are locked into one house, as earlier these were distributed between the home, the workplace, and the places we visited. What amazes me is how much waste is generated even through one cup of coffee.

So the only real way is to consider our actions and change our patterns of consumption. Reuse, recycle, replenish, save: these are the basic tenets that I live by.

The Future of Living: Net-Zero Homes

As we've been forced to stay indoors under lockdown

for the past few months, our homes have re-emerged as sanctuaries — places of safe and socially-distanced work, leisure, and engagement. The fundamental way we live hasn't changed much — however, I do hope that this pandemic will spark a push towards minimal resource consumption and sustainable living.

For the post-pandemic age, I envision low-rise residential developments, three to four storeys high that are navigable by foot. When compared to high-rise apartment buildings with common elevators and amenities, this scheme would allow for easier isolation. Each dwelling unit or sector would be serviced by autonomous travel capsules for individuals or groups of 2-4 people, providing a safe, socially-distanced public transit solution.



For the post-pandemic age, Bhatt envisions low-rise residential developments, three to four storeys high that are navigable by foot.



Zooming in, the residential units would be designed as modular, open-ended frameworks for flexible dwelling systems. Such well-serviced, well-lit, and adaptable spaces can be used for multiple activities now or in the future, increasing the lifespan of the building. Open-plan studio apartments with collapsible partition walls and roofs and flexible storage systems will allow residents to reconfigure their homes as needed. Isolation wards could be housed in basements with direct access to sunken green courtyards for fresh air and light.

To remain relevant longer than its period of conception, buildings need to be self-reliant,

functioning with minimum resource consumption. Relying on groundwater for water requirements and solar panels for energy, these buildings of the future will incorporate passive systems like thermal massing, light wells, and wind tunnels to improve their energy efficiency. Mechanical cooling requirements will be reduced through earth air tunnels and displacement ventilation, and green spaces and open gardens will let in natural light and fresh air while housing grow-rooms for hydroponic and aeroponic farming. All dry and wet waste generated will be treated on-site, and all outgoing waste to the grid will be taxed to incentivise responsible resource consumption.

- The author is Principal Architect at Architecture Discipline.

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