

Sustainable Homes

Five Must Do's To Make Your Home Net-Zero

The world's most luxurious homes increasingly wear a new badge of honour - green and sustainable. Climate conscious homes and lifestyle is the best way for those with wealth to express - "We care". Never before has the human race been challenged as much as today, to find ways and means to reduce carbon emissions to net zero by 2050, and keep global warming to within 1.5 degrees.

by **Manit Rastogi**

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The building sector has a crucial role in this "race to zero". Changing the way our homes are designed, built, consume energy and other natural resources, can potentially reduce carbon emissions by as much as 40%. The good news is, we have the knowledge, tools and design to do so.

Environmental design is deeply embedded in the conceptual framework of Morphogenesis' design philosophy S.O.U.L.® (Sustainable, Optimised, Unique, Liveable). Sustainability is defined as a project's ability to endure in local conditions and thrive in its lifecycle. Understanding that 'energy resources' at most times are considered limited or depleting, the firm's guiding principle is 'no is more'; No energy, no resources and ideally, no waste.

In keeping with our net-zero goal, we believe that a home should tackle sustainability through a three-pronged approach. Firstly, we need to focus on achieving a low carbon footprint and compensating for the energy and water that we consume. Secondly, to make our house environmentally sustainable we should ensure that our waste is either reduced, recycled, or reused. Ideally no part of it should end up in the landfills. Lastly, through socio-cultural sustainability we must strive to include the local communities and economies within our idea of growth.

Here are five cornerstones of a holistic approach towards sustainable living.

1. Orientation & Building Envelope

If you're building a new home, being cognizant of the site context and microclimate is crucial to attaining a net-zero

energy goal. Firstly, the local climate must be meticulously analysed by taking into consideration sunlight, wind patterns, rainfall, and average temperature. Certain vernacular techniques and details like earthen pot insulation, earth berming, high thermal mass walls, cooling ponds and wind catchers can be strategically implemented depending on the local climate. These passive design strategies can significantly reduce the energy consumption of the house while also lowering the embodied energy and construction cost. Furthermore, landscape design and horticulture selection can play a significant role in creating environmental buffers and facilitating effective microclimates.

At Morphogenesis, we extend the definition of sustainability into the socio-cultural realm. Sustaining communities is an essential part of our philosophy and over the years we have engaged with an incredible diversity of local artisans and craftsmen in India. Through the incorporation of local materials, techniques of construction and age-old skills—passed down over generations—the firm has been able to generate employment for native communities whilst lending a unique aesthetic to one's home.

2. Energy Efficiency

Once the first layer of passive design strategies is in place, move towards the installation of efficient and smart M&E equipment. Energy conscious LED lighting, cost-effective heating/cooling systems and a well-integrated smart system that can recognize behavioural patterns and monitor the habits of its end users will all go a long way to reaching the net zero target.



! 'Architects' House - Sustainable luxury home designed by morphogenesis

This reduced energy demand can be further offset by adding a third layer, i.e., alternative energy resources. Based on the lifecycle cost of renewable products in the market, a plethora of options are available for homeowners today. You can also procure Renewable Energy Certificates (REC) from large scale solar farms, since such farms improve reusability, maintenance, and life cycle of solar panels.

Additionally, if a house is generating more energy than it can consume and supplying it back to the grid, then it becomes an ideal 'energy positive' design.

3. Water Management

Akin to saving energy, the idea behind water management is to not only reuse and offset one's own consumption, but also replenish the water table of the land your home is built on. This can easily be achieved by employing rainwater harvesting, low flow water fixtures within homes, stacked plumbing, along with sensible use of water for cleaning and mopping purposes. Additionally, water must be recycled and reused for gardens, within the swimming pools and water fountains, to cut down the demand for freshwater and minimise wastage.

Another aspect to consider is that greenery within urban homes, although desirable, does consume a large amount of water. Newer forms of urban farming, hydroponic gardening, conscious selection of plants that consume significantly less water, and planting species that are native to the area will ensure that water is conserved and efficiently reused.

4. Waste Management

To truly realize our net-zero objective we must ensure that our waste does not end up in the landfill. It needs to be

thoroughly segregated into wet and dry bins to ensure that all biodegradable kitchen waste is composted and the dry waste—including paper, cardboard, metal objects, e-waste, glass, and plastic—is recycled and reused. Similarly, garden waste such as dry leaves and other organic matter are also compostable. If this practice is followed on a regular basis, we'd be able to use our waste as an additional resource and not just treat it as garbage that needs to be sent off to the overburdened landfills. Today there are simple home composting solutions available, which can be fitted into apartments of any size.

5. Materiality

Sustainability can be easily incorporated within the décor of our homes. Though reclaiming and recycling materials is important, technological advancement has now allowed us to upcycle and create newer materials by utilising old, discarded objects. For instance, reclaimed wood, recycled metal, PET, and jute are used across furniture, flooring, and furnishing within homes. Considering the pandemic, sanitizable materials (for instance, linoleum) with antibacterial properties need to replace the conventional furnishings, and carpets. Lastly, employing materials that are locally sourced and produced will allow communities to continue practicing their craft and provide them with an opportunity to sustain themselves.

In the words of Glenn Murcutt, an Australian architect, the idea is to 'touch the earth lightly,' i.e., we must work as one with the environment and be climate sensitive. The true legacy that we leave behind for our future generations will be defined by our sustainable footprint, and not by our wealth alone. At home is where we must begin.



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