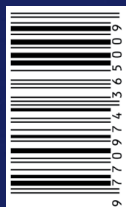


**SPECIAL REPORT: SUSTAINABILITY**

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## THE BIG START-UP PLUNGE

**WITH FUNDING DRYING UP AND  
GOVERNANCE ISSUES SPIRALLING,  
INDIA'S ZOOMING START-UP  
MACHINE HAS BEGUN TO NOSEDIVE**



**JOBS IN  
DEMAND**  
SKILLSETS FOR  
THE FUTURE

**THE  
ECONOMY**  
GATHERING  
STORM

**IPL MEDIA  
RIGHTS**  
BIG MONEY, HIGH  
STAKES



# THE GOOD LIFE

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# GREEN HOMES

Make your home energy efficient and avoid environmental toxins by using materials and resources in a responsible manner

BY SMITA TRIPATHI

**W**HEN 56-YEAR-OLD interior designer Revathi Nair was building her retirement home on the outskirts of Bengaluru, she was conscious

of the fact that it had to be sustainable. “I was constructing a house, so that was anyway adding to my carbon footprint. The least I could do was ensure it was sustainable,” she says.

A sustainable house is one that has the least possible impact on the environment. That means it is energy efficient and is built using materials with a low carbon footprint. “Sustainability is not restricted only to the environment but it’s also about the socio-economic impact. Construction is only a part of it; you need to think of the whole operation,” says Rosie Paul, Co-founder and Principal Architect of Bengaluru-based Masons Ink Studio, which specialises in sustainable homes. She recommends working with local and natural materials such as mud, rocks and stones, and engaging local labour. “That way you positively impact the community and help the local economy with labour and materials,” she says. Italian marble is a strict no-no, if you want to build a sustainable home.



1

Mud, stone and reclaimed wood are the major materials used

2

Think local, act local is the mantra used for the construction of this farmhouse



Says Anupama Mohanram, Co-founder and Head of Architecture at Green Evolution, a Chennai-based firm that specialises in building energy efficient and earth-friendly spaces: “Use natural materials like mud blocks or hollow terracotta blocks that are good insulators. Concrete and brick are very poor insulators. They absorb the heat from outside during the day and radiate it inside during the night. Concrete heats up the place; it’s also not sustainable.”

Buildings and construction together account for 36 per cent of global final energy use and 39 per cent of energy-related carbon dioxide emissions, according to the International Energy Agency’s Global Status Report 2017. This makes sustainable homes the need of the hour.

When it comes to the materials used for constructing the house, you also need to consider their entire lifecycle. “So while a mud block will decompose, a cement block will end up in a landfill,” says Paul, who prefers using mud and lime, and proposes techniques where cement use is significantly reduced.

While you may think wood is sustainable, it being natural, do check if it is sourced ethically, advises Ashwin Alva of Delhi-based Alva Architects. “Ask, is my timber sourced ethically? Is it certified, which means whether it has been legally cut and sourced. These are parameters of environmental safety worldwide.”

Alva also recommends using materials with low VOC—volatile organic compounds—which are neither good for our health nor that of the environment. “Of course, when you are choosing the materials, there is a cost to it, but it is a cost that you are bearing because you are conscious of what you are doing,” he says.

## ENERGY EFFICIENT

Making your home energy efficient is critical for your house to be sustainable. One of the first steps is to get the orientation of your house right. “The house needs to be located in such a way that it receives adequate breeze and light,” says Mohanram. For instance, if the house is in a hot and humid city such as Chennai, then you need to ensure that there are adequate windows in the direction of the breeze. “We will, for instance, not locate bedrooms in the West, as they are likely to get hot during the afternoons and evenings. We avoid large openings in the West and East facades and locate them in North and South,” she says. Adds Paul, “An

intelligent layout and reducing the amount of energy-intensive materials such as cement, steel, etc., along with a climate-responsive design will make the house more energy efficient.”

As far as interiors are concerned, it’s best to go for energy-saving appliances. “Something as basic as keeping the air conditioning at 26 degrees helps conserve energy,” says Alva.

“Once we reduce the electricity consumption, the next thing is to power it with solar or wind energy,” says Mohanram. She says for a three-bedroom house you only need 1.5 kW of energy every month. You could put up solar panels on your roof and now there is also technology where parts of the building can be replaced by solar panels. “While such technology



①

**An eco-friendly home in Tamil Nadu designed to stay cool without the use of air conditioning**

②

**Sustainable features like hollow terracotta block walls and exposed brick arches**

③

**The verandah floats over a water body, collecting rainwater**





2



is starting to come up but in India it still has some way to go. Currently, in India, the easy thing for anyone to do is the conventional solar installation,” she says.

No house can be truly sustainable if you are not conserving water. Use fixtures like dual-flush toilets that allow you to select a lesser or greater flush rate depending on your needs. “A conventional flush tank uses about 9-10 litres of water but dual flush tanks use 6 litres and 3 litres. Now there are 4-litre and 2-litre flushes as well,” says Mohanram. All of your plumbing equipment, including faucets and shower heads, can be set to use less water. Mohanram suggests installing aerators to reduce the water flow. “While a regular tap releases around 15 litres of water a minute at full flow, an aerator can bring it down to 2 litres a minute,” she says.

Next is to treat the wastewater. You need to separate the grey water from the black water. Black water is the toilet flush water while grey water is the

bathing, kitchen and sink water. Both of these can be reused for landscaping once they have been treated. “The idea is to not let the wastewater out of your home. Treat it and reuse it,” advises Mohanram.

Rainwater harvesting is also, of course, important. Save all the rainwater, filter it and then use it.

Unfortunately, if you are moving into a constructed apartment, there isn’t much you can do except use energy-efficient equipment and eco-friendly material for the interiors. Avneet Kaur, Livpreneur at interior design firm Livspace, suggests using repurposed wood, bamboo and wicker for cabinets, along with eco-friendly wallpaper since paints are harmful. “You can get your windows double glazed and use solar window panels,” she suggests.

Of course, step one to being sustainable is to not build a house at all, but if you are building one, make it a sustainable one. **BT**

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