

Eco-Friendly By Design - The Responsibility of an **ARCHITECT**



Introduction



One of the biggest challenges in world is fighting global warming, into which everyone, every organization and every industry has a potential role to play. For decades, sustainability has been much more than a buzzword for architects. Importance is given to better design and technology rather to improve building performance and energy efficiency. Architecture is one of the key drivers of physical environment of a community through which we can slash energy consumption by 60-70% if we reduce the load on heating, cooling and other systems. This industry is responsible for nearly half of the carbon emissions in the world. Energy-savvy design can lower emissions, and in some cases, even generate energy. But scale proves a significant challenge. One off-the-grid tiny house won't put a dent in the world's carbon emissions but a large community of the same can make a difference.



Role of an architect

THE FIVE OBJECTIVES TO BE FOLLOWED BY AN ARCHITECT

- **AWARENESS**
- **SERVE**
- **FORMULATE**
- **ESTABLISH**
- **REQUIRE**

Masdar City

Masdar City is located in Abu Dhabi, and is designed to be the most environmentally sustainable city in the world. The low-carbon, low-waste city relies entirely on renewable energy. Power is generated by a 10 MW photovoltaic power plant located on site and 1 MW of rooftop solar panels. The city is designed to be a hub for clean technology companies.



Key Features

- Masdar houses 7,000 residents & 12,000 commuters from Abu Dhabi.
- Completely runs on renewable Energy,
- A concentrated solar power plant with 100 MW of capacity.
- Masdar City buildings are designed to cut energy by 56% and potable water consumption by 54%.
- Most of the material used for construction used to build is either recycled and sustainable.



Giant umbrellas, with a design based on the principles of sunflowers, will provide moveable shade in the day, store heat, then close and release the heat at night in the plaza



The headquarters of the International Renewable Energy Agency (IRENA), to be located in Masdar City. It will be the first building in history to produce more energy than it consumes



ECO - FRIENDLY MATERIALS:

Using long sustaining materials will be the key element to ensuring an environmentally friendly future. There is a vast number of alternatives to the traditional building materials that are not only environmentally friendly but also economically viable and can be used today.



HEAT- PROOF GLASS A new coating for glass that can keep the heat from the sun out, saving on air conditioning costs. How it works: A microscopic coating, around the thickness of a human hair, of Vanadium dioxide is inserted into the glass. This lets in only a fraction of the total energy coming in. Similar to the working of sunglasses, When the window gets hot, it becomes more reflective. But it only becomes more reflective of the heat portion of the sunlight, not the light portion

WOOL BRICKS these wool bricks are exactly what the name suggests. Simply by adding wool and a natural polymer found in seaweed to the clay of the brick, the brick is 37% stronger than other bricks, and more resistant to the cold wet climate. They also dry hard, reducing the embodied energy as they don't need to be fired like traditional bricks.

Solar tree



Solar trees are intended to bring visibility to solar technology and to enhance the landscape and architecture they complement, usually in a commercial or public context. An objective of many solar tree installations is to promote awareness, understanding, and adoption of renewable energy. They are not typically used as a primary source of energy for a property—that role is accomplished by rooftop solar systems. Solar trees are complementary to rooftop solar systems, or other green building measures, symbolizing these larger investments and their environmental benefit.

Cost of Unit Supplied by BESCOM.

Region	Upto 30 units	From 31 to 100 units	From 101 to 200 units	Beyond 200 units
Urban	2.70	4	5.25	6.25
Rural	2.60	3.70	4.95	5.75

Finance

Benefits

- your roof will not get direct sunlight.
- Solar panels typically last around 20.
- They can generate power in the shade.

Lighting



Advantages

- Reduced consumption- energy, water, non-renewable materials
- Improved health – Indoor air quality
- Reduced Environmental impact

grow a green cover over roofs and walls. This cover functions as a second skin which provides

- protection against solar radiant heat,
- cooling by a ventilated space between green cover and wall or roof,
- reduction of glare,
- reduction of noise, by sound absorption,
- reduction of dust, by filtering the air,
- stabilization of the microclimate,
- protection of the wall and roof surfaces from wind and driving rain,
- a regulating effect on humidity



**I think one of the biggest issues is that
passing to all of the information and data every other needs
to make informed decisions to reduce
carbon footprint.**



Thank You

