

Solar House

**Pranali Dattatray Khandar, Shravani Datta Dhomane, Abhishek Dilip Aade
Om Kishore Bhiwagade, Abdul Aman Abdul Rafik, Sanket Arun Vitonde**

Department of Civil Engineering Poly

Dr. Rajendra Gode Institute of Technology & Research, Amravati

Abstract: In this high energy crisis age there is need to develop such a building mechanism such that maximum solar energy can be used to power the building which will be eco-friendly and cost effective. Solar energy is the most easily available and most eco friendly source of energy. For past three decades, tapping the energy from the sun has been considered as great potential resource to meet the future demand of energy but large scale utilization has faced many bottlenecks such as cost of technology, energy storage, distribution of solar power and daily/seasonal variation of solar resource. This paper presents an analysis of the state-of-art technology for a solar photovoltaic distributed energy source appliance for domestic residential buildings. It suggests ways to incorporate solar design into multi-unit residential buildings, and provides calculations and examples to show how early design decisions can increase the useable solar energy. Photovoltaic is a solar power technology that uses solar cells or solar photovoltaic arrays to convert light directly into electricity with no emission of dangerous gases and with least amount of industrial waste. Solar cells are a key technology in the drive towards cleaner energy production. Unfortunately, solar technology is not yet economically competitive and the cost of solar cells needs to be brought down. Growth of the photovoltaic (PV) market is still constrained by high initial capital costs of PV. One way to overcome this problem is to reduce the amount of expensive semiconductor material used. The success of implementation of photovoltaic (PV) power project is increased when PV module system is integrated with building design process and is used as multi purpose appliance for use with building elements. The improvement in overall system efficiency of building integrated PV modules embedded in building façade is achieved by minimizing and capturing energy losses. A novel solar energy utilisation technology for generation of electric and thermal power is presented by integration of ventilation and solar photovoltaic device with the heating, ventilating and air conditioning (HVAC) system.

Keywords: Renewable energy, Solar Photovoltaic cell, semiconductor material, solar tracking

