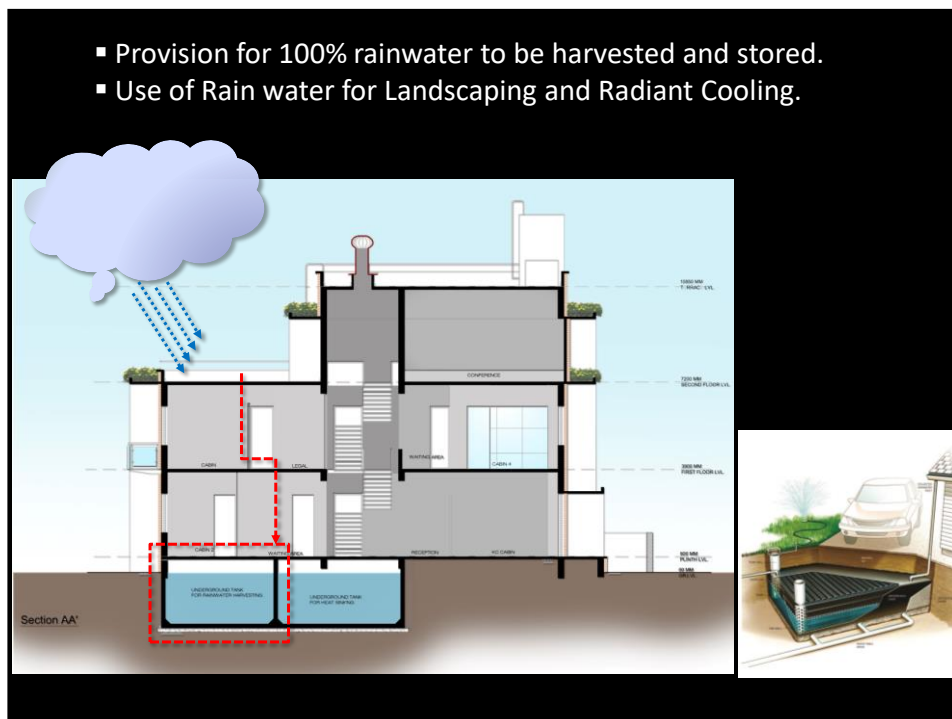


# GREEN BUILDING

**Green buildings are those building built using material and processes that are environ-friendly and resource efficient. They exploit renewable resources as far as possible, for example sunlight for their energy needs through solar panels and similar devices, spreading greenery via plants ,green roofs and rain garden and rain water harvesting.**



**We first build green building about 9000 years back in Mehrgarh part of Harappa now in Pakistan.**

**Green building also known as green construction or sustainable building refers to both a structure and the using process that are environmentally responsible and resource efficient through a building life cycle from sitting to design, construction, operation maintenance, renovation and demolition. Green building design involves finding the balance between homebuilding and sustainable environment.**

**A growing number of countries including U.S., Japan, and most European have adopted green policies. Leadership in Energy and Environmental Design (LEED) is a set of rating systems for the design construction ,operation and maintenance of green buildings which was developed by U.S. green building council.**

**Government of Maharashtra grant additional FSI to realtors who adopts green building projects. Green building brings together a vast array of practice techniques and skills to reduce and ultimately the impacts of building on the environment and human health. The practices or technologies employed in green building are constantly evolving and may differ from region to region .Fundamental principles based on from which the method is derived sitting and structure design efficiency ,energy efficiency, Indoor environment quality enhancement.**

**On the aesthetic side of green architecture or sustainable design is the philosophy of designing a building that is in harmony with the natural features and resources surrounding the site. There are several key steps in designing sustainable building specify green building**

**materials loads, optimize system sand generate on site renewable energy**

- Use of Turbo Ventilators for extracting hot Air without use of Energy



**Following points are considered while green building**

- 1)Optimize demand for electricity, water and natural resources (in construction ,operation and demolition)**
- 2)Generate all its electricity on through renewable means..**
- 3)Cater to all its water demands through sustainable process such as rain water harvesting.**
- 4)Grow its own food on site.**
- 5)Recycle and reuse all its waste on site and burden the environmental to the minimum.**

**There are 3 grading systems for green building**

**1)IGBC-Indian Green Building Council.**

**2)TERI- The Energy and Resources Institute**

**3)LEED- Leadership Energy and Environmental Design developed by USGBC**

**In Indian Green Building council weight ages are given to**

**a)Sustainable architecture design and planning.**

**b)Site selection and planning.**

**c)Energy efficiency**

**d)Building material resources.**

**e)Indoor environment quality**

**f)Innovation and development.**



■Use of Fly Ash Bricks for Construction

**One can easily design a green building by adopting the integrated design approach, such that client ,architect, engineer.**

**Following are some the principles of green building (6R's)**

**1)Refuse- To blindly adopt international trends materials, technologies, products, etc specially in areas where local substitutes/ equivalents are available.**

**2)Reduce-The dependence on high energy products ,systems, process etc.**

**3)Reuse- Materials, products,traditional technologies so as to reduce the cost incurred in designing buildings as well as in operating them**

**4. Recycle – all possible wastes generated from the building site, during construction, operation and demolition**

**5. Reinvent – engineering systems, designs, and practices**

***such that India creates global examples that the world can follow***

**6. Renewable: Renewable energy sources can be used**

**One can easily design green building by integrating resource-efficient features into a building's design from the pre-design stage itself, and by ensuring that the architects, engineers and contractors follow established environmental principles addressing local needs, designing a green building is easy and fun, and *may cost lesser than a conventional building.***

**\* Steps for Green Building**

**1. By adopting the integrated design approach such that the client, architect, engineers, and consultants design the building in a coordinated manner with a common goal –sustainability.**

**2. By following regional development plans (such as the UPFI guide lines, master plans) and local building by-laws.**

**3. By following India's national codes and standards**

**4. By optimizing site conditions (trees, water bodies, wind flow, orientation, etc.) and harnessing them to cater to the thermal / visual comfort requirements of the building.**

- 5. By adopting sound architectural practices and taking examples from India's traditional architecture.**
- 6. By adopting locally available construction materials and giving impetus to local arts, crafts, architecture and artisans.**
- 7. By designing precisely-sized energy systems and not basing them on broad thumb-rules.**
- 8. By reducing the resource consumption of the building and its inhabitants so that the waste generating there-from is reduced.**
- 9. By adopting energy efficient technologies (EETs) and Equipment.**
- 10. By adopting renewable energy technology (RETs) applications to reduce the demand on conventional energy.**

**Most simply, the idea of sustainability, or ecological design, is to ensure that our actions and decisions today do not inhibit the opportunities of the future generations. "Architecture must not fight nature but should seek to partner with it."**

**PAPER –GREEN BUILDING**

**SANDIP POLYTECHNIC.**

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