



IMPORTANCE OF GREEN ARCHITECTURE TODAY

presented by –

MADHUMITA ROY
DEPT. OF ARCHITECTURE
JADAVPUR UNIVERSITY
KOLKATA, INDIA.

GREEN ARCHITECTURE



...a concept of sustainability.



endogenous system - connectedness to its roots, context, mutual dependence.



‘GREEN ARCHITECTURE ’ - is not a product but an attitude – a path.



- its about harmony.
- about creating a balance between built and nature.
- it requires understanding.



“the earth provides enough for every man’s needs
but not for every man’s greed.”

- *M.K.Gandhi*



destroys nature mercilessly



“GREEN ARCHITECTURE” - is the alternative way



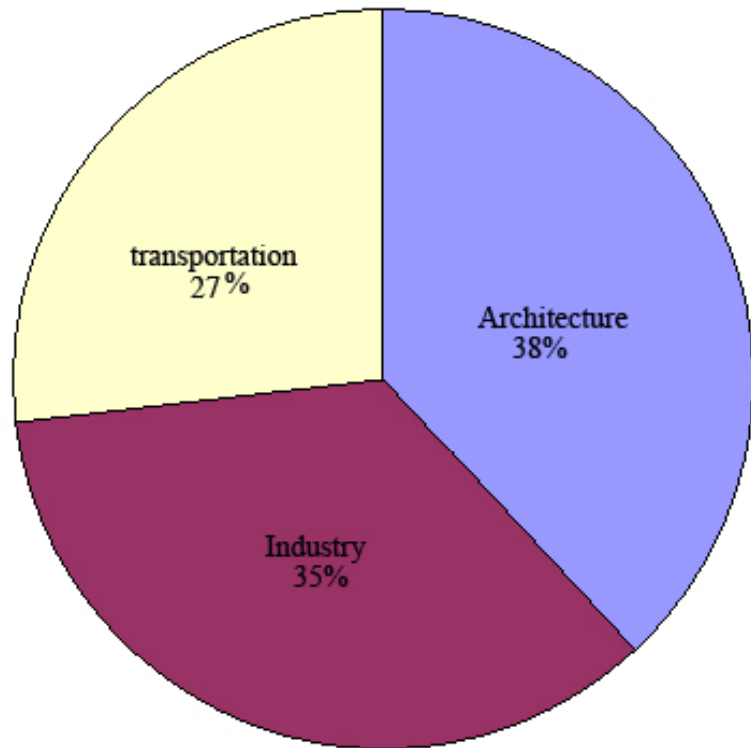
human intervention

Green architecture, or green design, is an approach to a building that minimizes harmful effects on human health and the environment.

The “**GREEN**” factor an architect or designer attempts to safeguard are - **air**, **water** and **land** by choosing *eco-friendly* building materials and construction practices.

.....**land,air,water are finite & scarce elements.**

An architect has the ability to change entire building process with the stroke of a pen by specifying a material with low carbon dioxide emissions in its fabrication.



PIE CHART SHOWING THE PERCENTAGE OF ENERGY CONSUMPTION BY DIFFERENT SECTORS

How does a building consume energy?

PRODUCTION ENERGY : (Embedded or Embodied energy)

In the energy invested in building materials through the process of the Production, Assembly, Maintenance, Alteration and Demolition, and of course of Recycling components or materials.

OPERATING ENERGY :

The energy necessary for maintaining required levels of comfort and operating. Conditions in building.

INDUCED ENERGY :

Energy consumption caused indirectly through the process of construction e.g. commuter traffic or supply of goods.

DESIGN CONSIDERATIONS

ANNING

Reduced site disturbance.

Waste water management.

Storm water management.

Landscape and Exterior Design to reduce heat islands.

Light Pollution Reduction.

Reduced Car dependence through car parking provision.

SOLAR PASSIVE FEATURES

Shape and form of buildings.

Orientation of the facades.

Design of Building plan and section.

Thermal insulation and thermal storage of roof.

Thermal Insulation and thermal storage of the exterior walls.

Thermal insulation, air tightness, ventilation properties and daylight properties of windows and doors.

Glare control of exterior and interior walls.

SOLAR ACTIVE FEATURES

Use of solar PV panels(Building integrated system)

Use of solar collectors for water heating

OTHER ELECTRO- MECHANICAL FEATURES

Heating, Ventilation And Air-conditioning (HVAC)

Electrical Services

Lighting Installations

Lifts And Escalators

Plumbing And Drainage

Building Management

SOLAR BUILDINGS

Designed to keep environment comfortable in all seasons without much expenditure on electricity

30 to 40% savings with additional 5 to 10% cost towards passive features.

Major Components : Orientation, double glazed windows, window overhangs, thermal storage walls/ roof, roof painting, Ventilation, evaporation, day lighting , construction material etc.

Designs depend on direction & intensity of Sun & wind, ambient temp., humidity etc. Different designs for different climatic zones

SOLAR PASSIVE BUILDING OF TRANSPORT CORPORATION OF INDIA LTD



- Total built up area is 2750 m²
- North- South orientation to receive maximum solar energy
- Window shadings to cut out summer sun & let in winter sun
- Eco-friendly absorption technology adopted for air conditioning
- Polyurethane board insulation on wall and roof
- Combination of mass and void to cater to ventilation and day lighting

ABIRASHMI HOUSING COMPLEX, KOLKATA



India's first Solar Housing Complex has been constructed in the New Town area of Kolkata city in the State of West Bengal. The complex is a unique model in India and has been developed on the concept of 'Zero use of conventional electricity'. It comprises of independent houses, a community hall and a swimming pool.

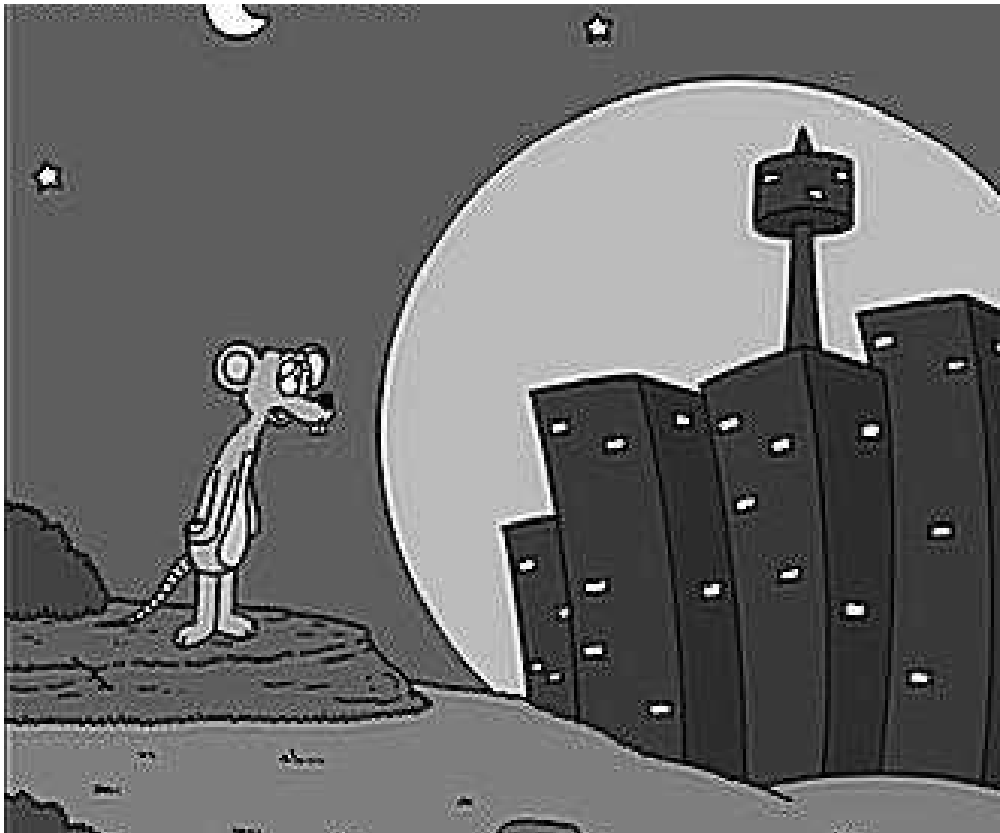
1.5 KW ROOF INTEGRATED PHOTOVOLTAICS (BIPV) CSE CANTEEN, DELHI





Less is more : an attitude of purity of design

“... cities are springing up everywhere these days, I would better move away if I want to remain a country mouse.”



THANK YOU