



Bureau of Energy Efficiency



सत्यमेव जयते
Government of India
Ministry of Power



german
cooperation
DEUTSCHE ZUSAMMENARBEIT

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

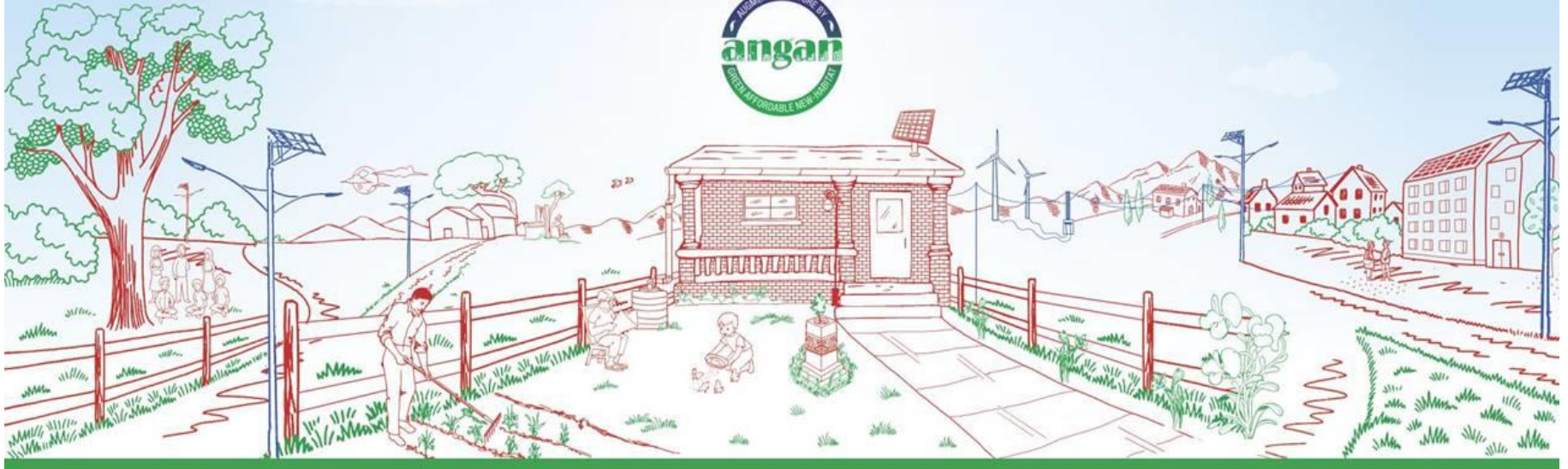
ANGAN

Augmenting Nature by Green Affordable New-habitat

A Courtyard for Revolutionary Change in Building Energy Efficiency

An International Conference on Building Energy Efficiency

9th-11th September, 2019 | Hotel The LaLIT, New Delhi





Bureau of Energy Efficiency



सत्यमेव जयते
Government of India
Ministry of Power



german
cooperation
DEUTSCHE ZUSAMMENARBEIT

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

THIS PRESENTATION WAS SHARED BY

Prem Nath

Architect Premnath and Associates

FOR THE SESSION:

“Keynote Address #3”

DURING ANGAN 2019

Knowledge Partner



teri | THE ENERGY AND
RESOURCES INSTITUTE
Creating Innovative Solutions for a Sustainable Future

Event Partner | **TEC INDIA**™
EVENT & BRAND MANAGEMENT CO.

ANGAN

**Augmenting Nature by Green Affordable New-Habitat –
2019 DELHI**

प्रेम

प्रेम













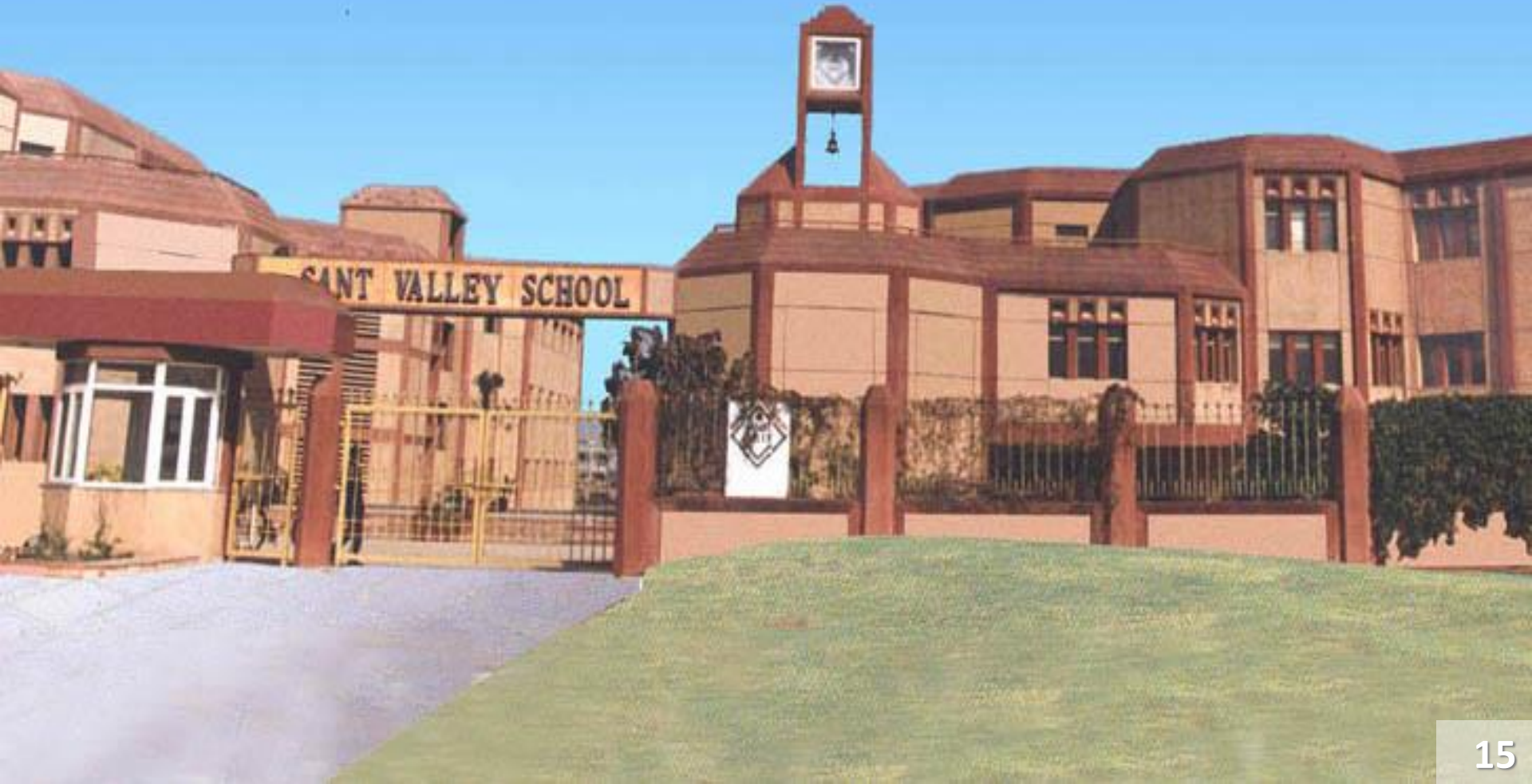








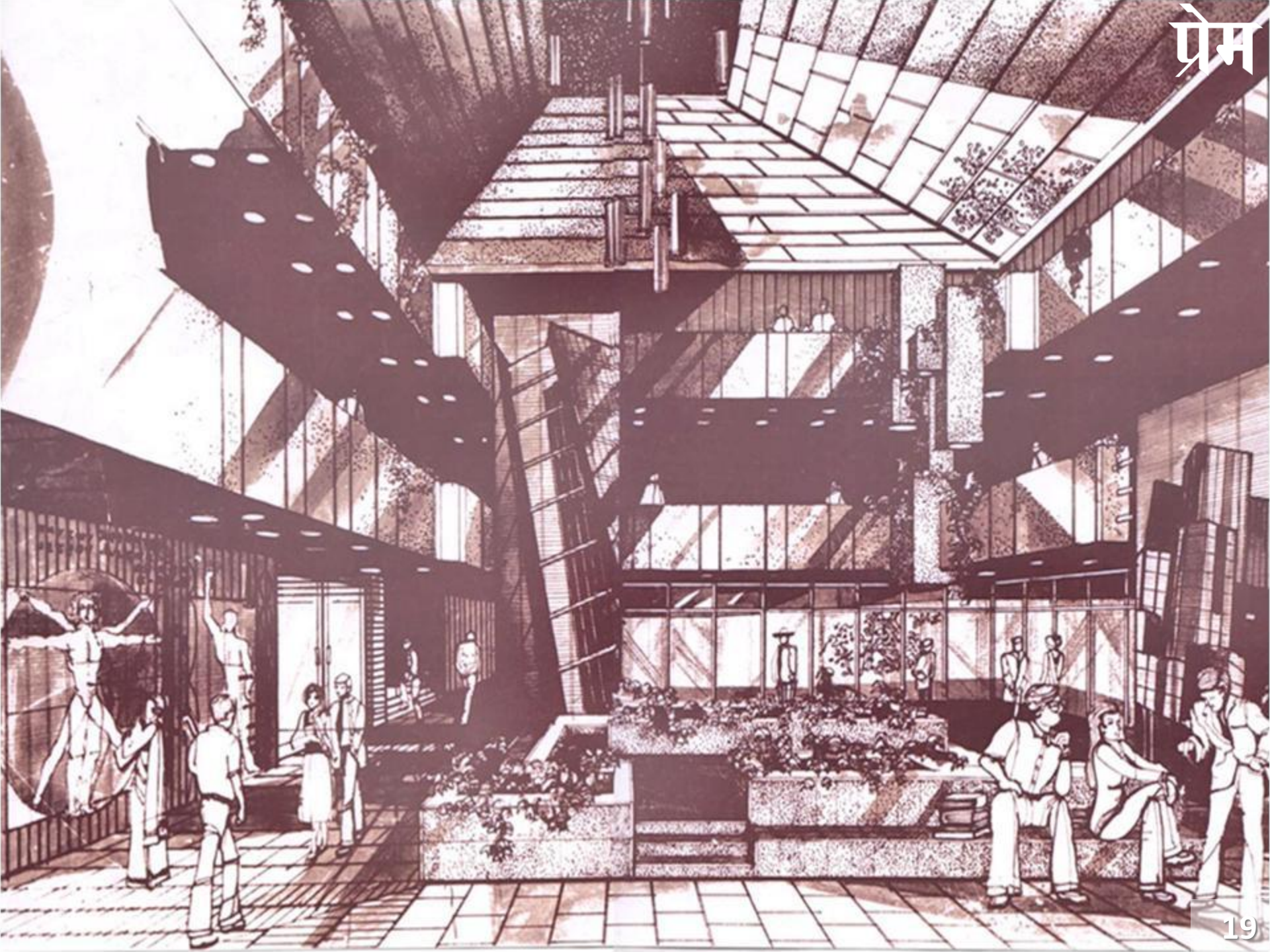


















accenture

accenture

mind
space

K Raheja IT Park









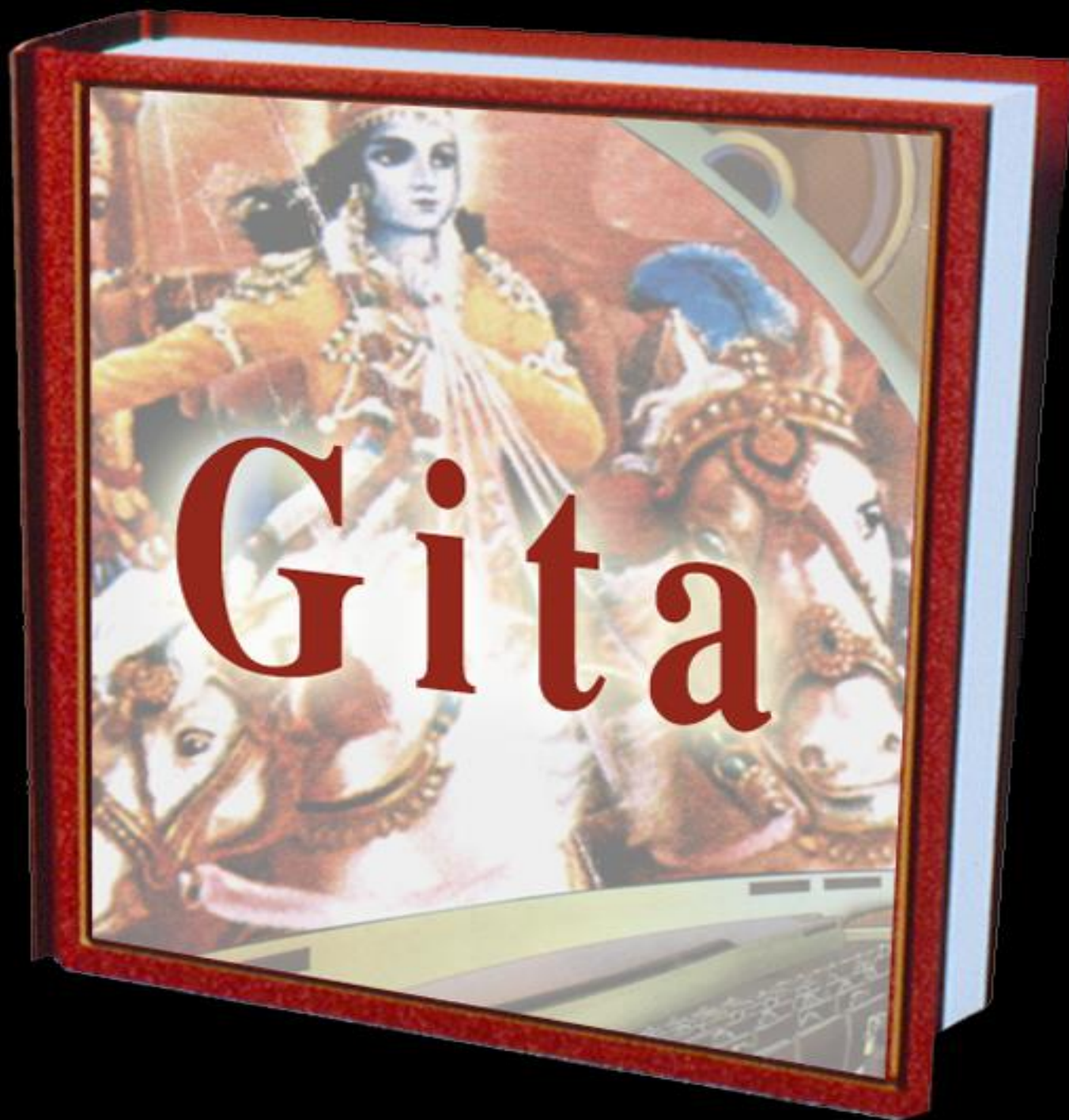


प्रेम

VASTU - GYAN

The north east corner is with more open space and low structure to take maximum advantage of the favourable north-east sunlight in the morning





Gita

KĀMĀ SŪTRA

प्रेम

*Classic
Indian Text*





















SMART SUSTAINABLE ARCHITECTURE



By the year 2050 – almost 800 million people in India itself, apart from millions world over, shall have SHIFTED towards Urbanization – this Shift shall affect the human living, the lifestyle; India will lead towards an Urban development of New Kind, which will be Regenerating the Old Developments;

Migration & Over Crowding URBAN AREAS

प्रेम





More people are relocating themselves to the urban land in search for better prospects, better opportunities, to fulfill their 'BIG DREAMS'



**URBANIZATION MUST BE PEOPLE FRIENDLY, ECO-FRIENDLY.
THE DEVELOPMENT MUST BE ABLE TO LIVE 'TEST OF TIME'
VERY FEW CITIES IN THE WORLD TODAY,
ADHERE TO THESE STANDARDS...**





The Infrastructure is getting Tight, the Roads are getting Cramped

There has been always a conflict – today with need for more and more space parks are being converted to Car Parks



प्रेम

...Green Parks are fast vanishing in Cities



**Who shall decide: Whether One wants more
'Parks' or 'Car Parks'**



Urbanization has taken over the World today..



New Developments are Energy Guzzlers ₄₉

Looks to find new ways to provide our needs
without creating these Impacts...

प्रेम

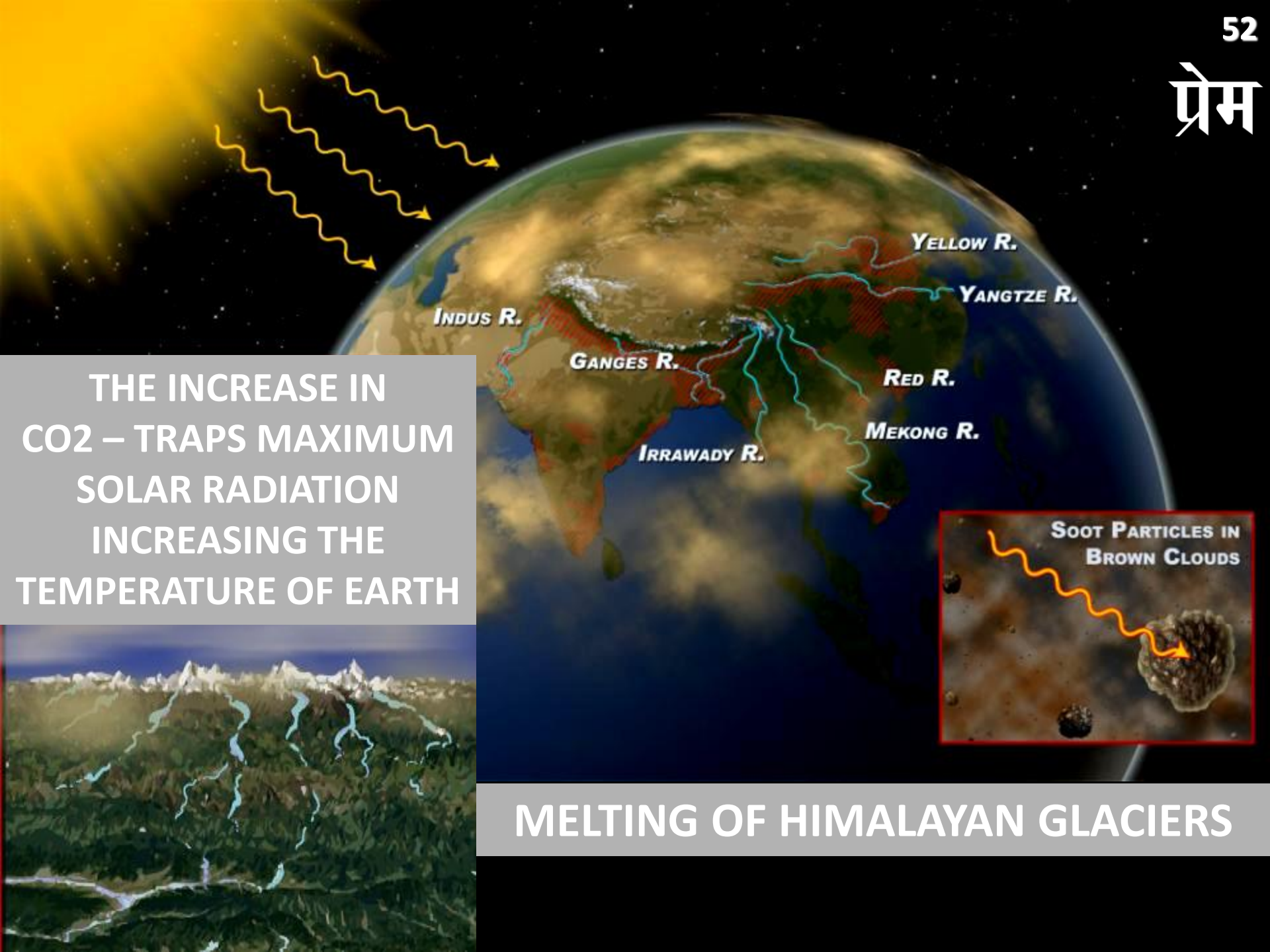


GLOBAL WARMING

In the last decade – ‘Damage’ has increased multifold



“Global Warming”



THE INCREASE IN
CO₂ – TRAPS MAXIMUM
SOLAR RADIATION
INCREASING THE
TEMPERATURE OF EARTH

SOOT PARTICLES IN
BROWN CLOUDS

MELTING OF HIMALAYAN GLACIERS

1980

प्रेम



MELTING OF GLACIERS

2001



MELTING OF GLACIERS

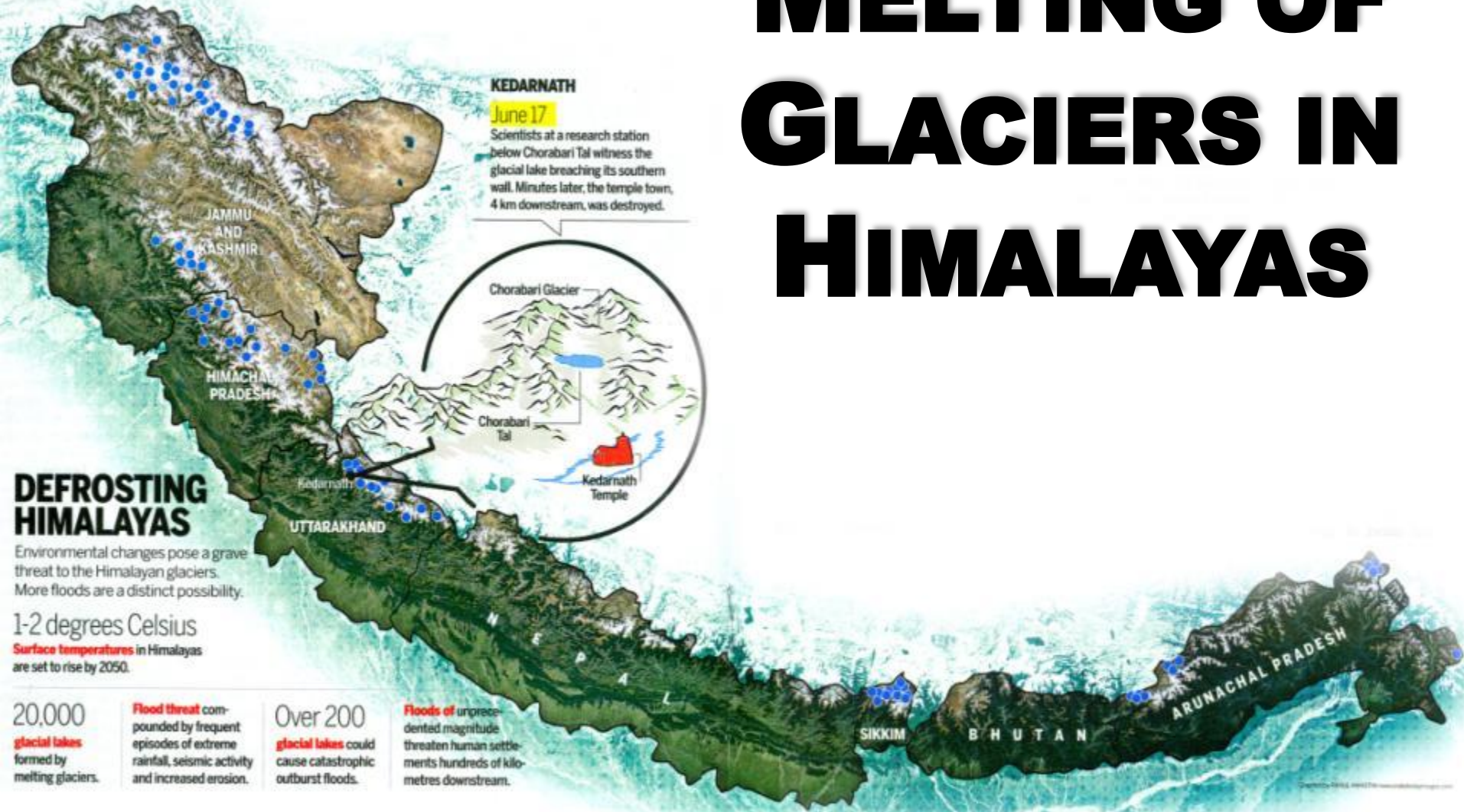


PORTAGE GLACIER AK, 1914 • NOAA

© 2004 Gary Brauch
<http://www.worldviewofglobalwarming.org>
PORTAGE GLACIER AK
(AERIAL ESTIMATION OF 1914)

Alaska's Portage Glacier
Change between 1914 and 2004

MELTING OF GLACIERS IN HIMALAYAS



**BEFORE ITS TOO LATE
LETS START PERSUING
SUSTAINABLE
ARCHITECTURE**



SUSTAINABLE HOMES



SUSTAINABLE HOMES



SUSTAINABLE ARCHITECTURE - CORBUSIER



SUSTAINABLE ARCHITECTURE - CORBUSIER

Louvers for Cross Ventilation



SUSTAINABLE ARCHITECTURE - CORBUSIER

Louvers for
Cross Ventilation



SUSTAINABLE ARCHITECTURE - CORBUSIER







Louvers for Cross Ventilation







NATURAL EXHAUST VENTILATION

Exhaust Ventilators & louvers



वेम











**IT IS TIME
FOR**

**SUSTAINABLE & DIET
LIVING**

GREY LIVING

VS

GREEN LIVING



OBESSE DIET



= ENERGY GUZZLERS !



DIET LIVING



= DIET BUILDING !



4 PARAMETERS OF SUSTAINABLE ARCHITECTURE



SUSTAINABLE ARCHITECTURE

CONSERVE POWER



CONSERVE WATER



GENERATE POWER



GO GREEN



SUSTAINABLE ARCHITECTURE

CONSERVE POWER



CONSERVE WATER



GENERATE POWER



GO GREEN



ITS TIME TO CUT DOWN THE DIRTY ENERGY

प्रेम

POWER





SMART APPLIANCES ...

प्रेम

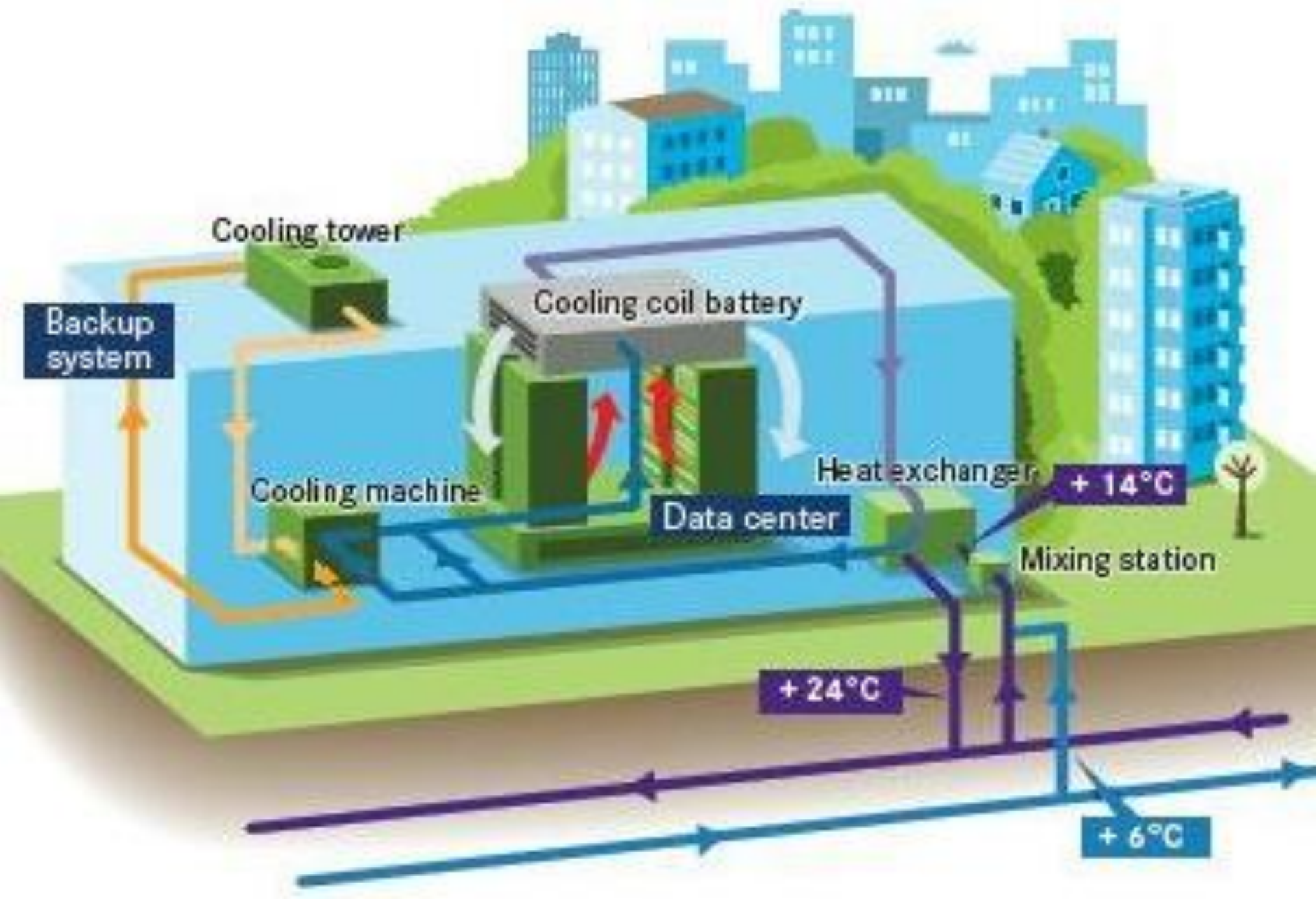


SMART EQUIPMENTS... Bio-Fuel Generators

प्रेम

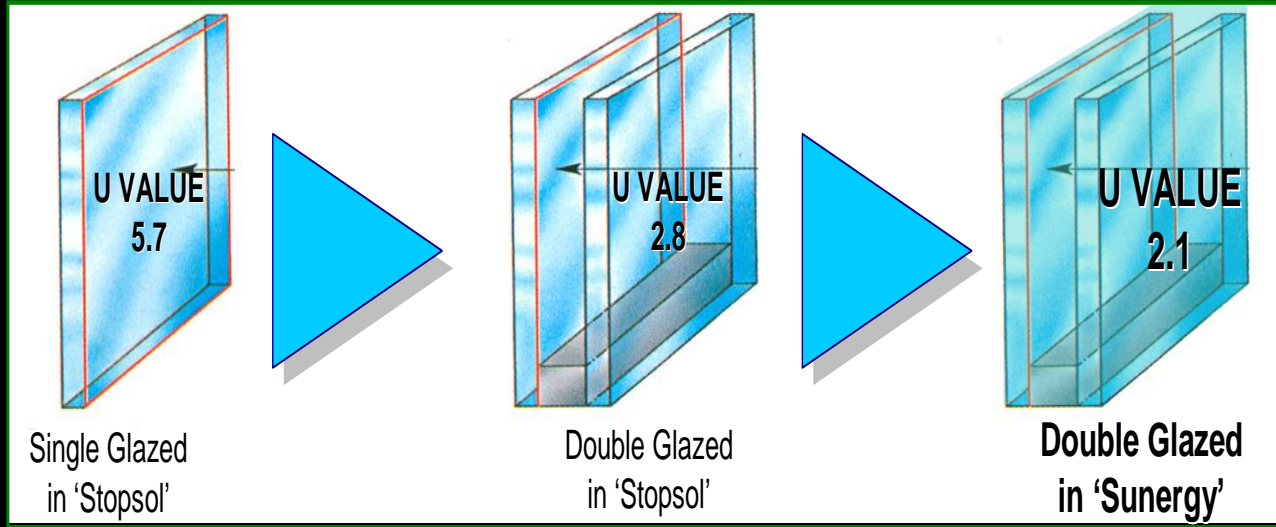
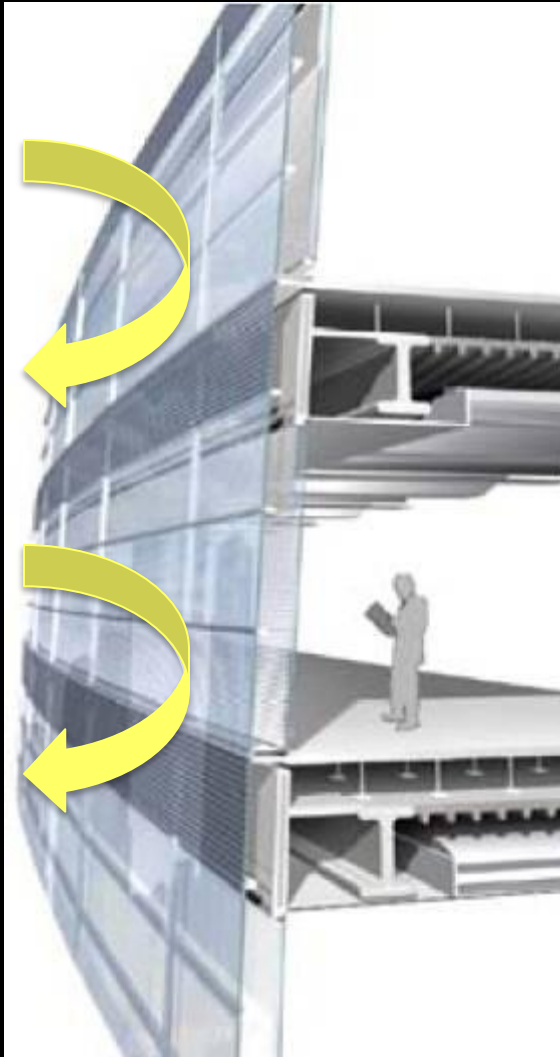


SMART EQUIPMENTS... District Cooling प्रेम



The New Concept: Utilizable Features / Products

Low-e Glass



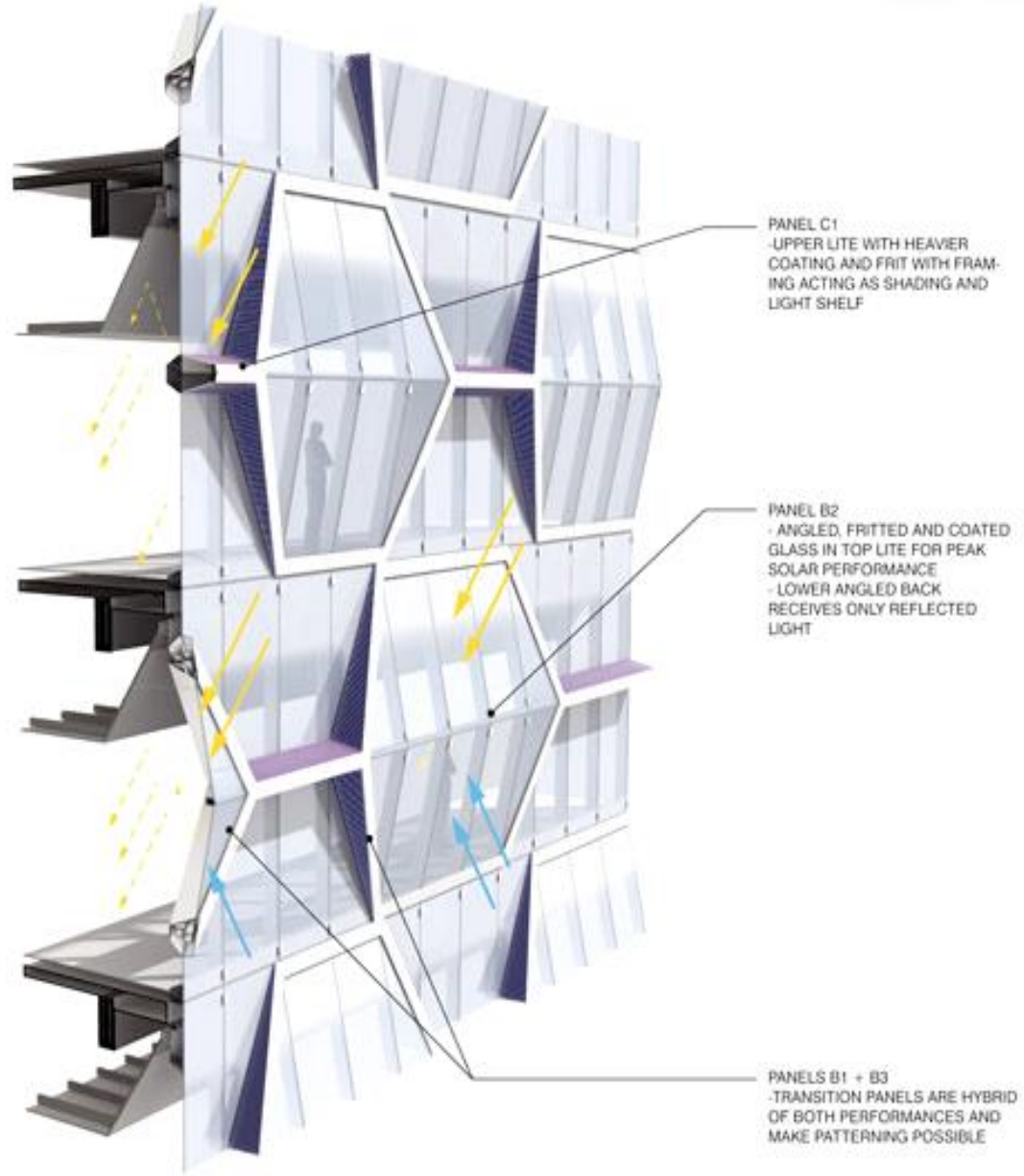
Right use of Low-e Glass i.e. double glazed coated glass, in external façade may enable reduced heat transmissions by about 40%

NOW THERE IS MUCH MORE TO FACADES ...



**DOUBLE GLASS FACADES
TO INCREASE DAYLIGHT & REDUCE HEATING**

NOW THERE IS MUCH MORE TO FACADES ... प्रेम



NOW THERE IS MUCH MORE TO FACADES ...

प्रेम



ATRIUM - SKY LIGHTING

प्रेम



ATRIUM - SKY LIGHTING

प्रेम



SUSTAINABLE ARCHITECTURE

CONSERVE POWER



CONSERVE WATER



GENERATE POWER



GO GREEN

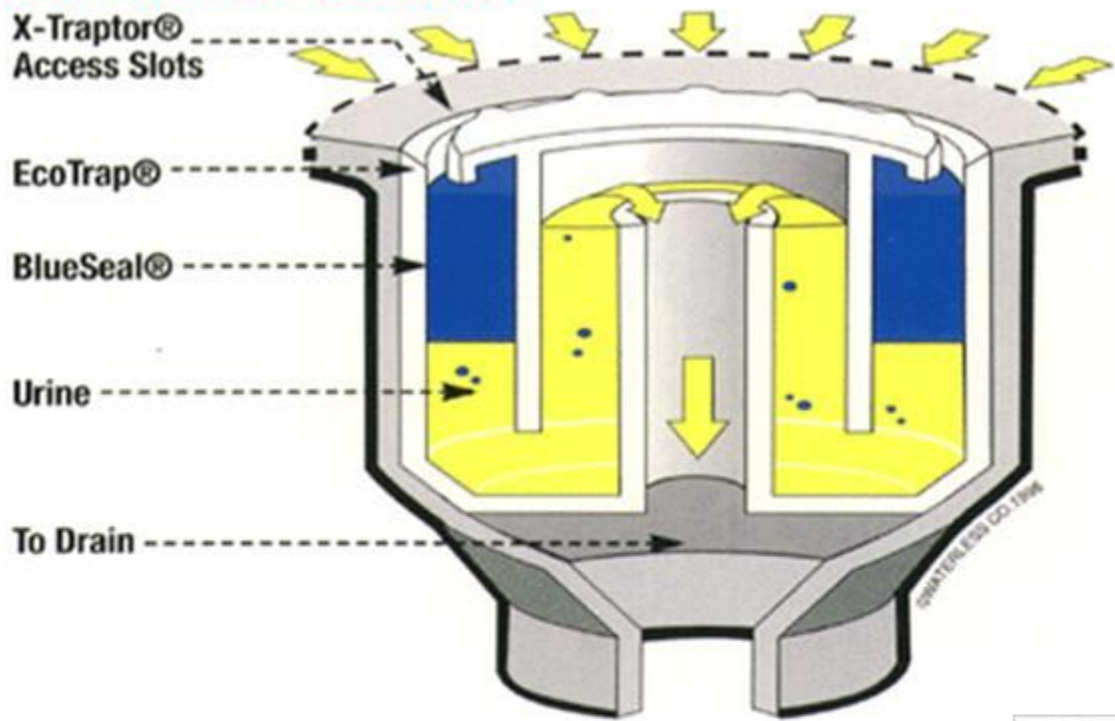




**WATER
CONSERVATION**

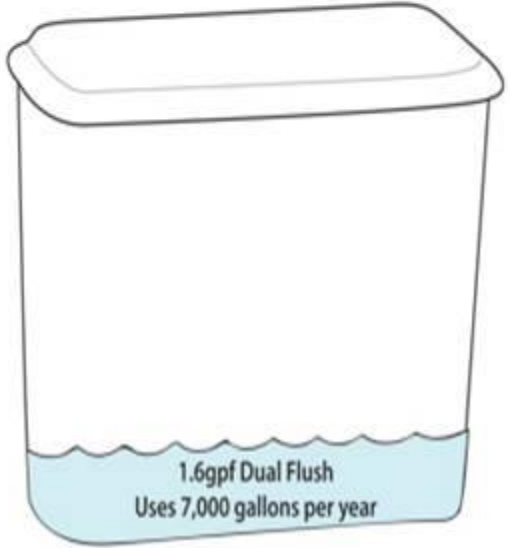
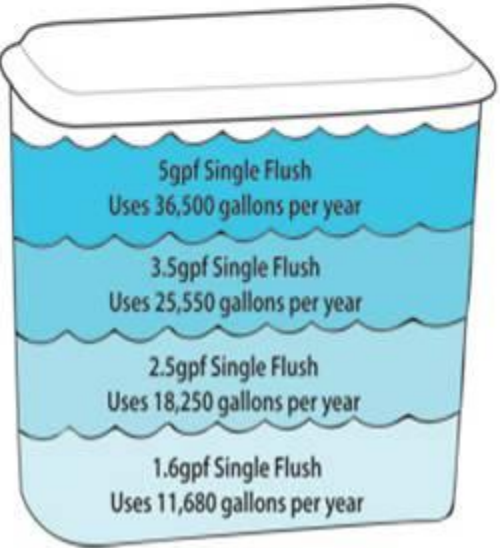


Waterless Urinals



Water
restrictions

Reduce your use!



Manage Landscape water

DRIP IRRIGATION

95

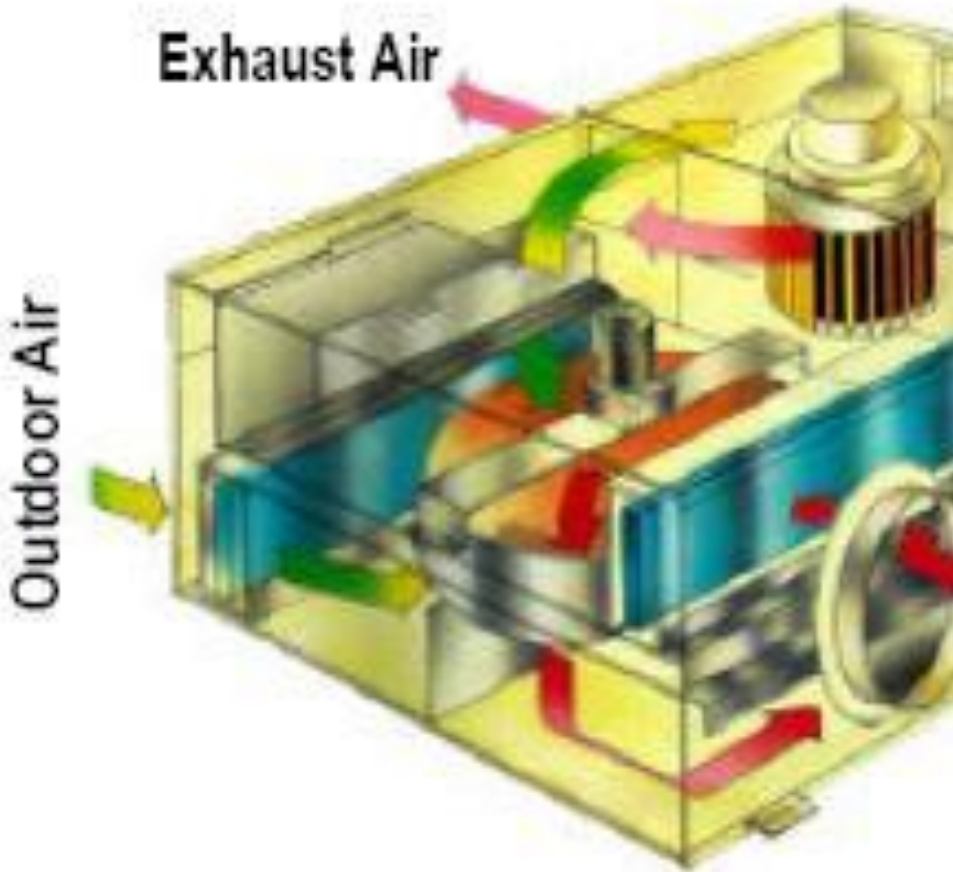
प्रेम



CONSERVE WATER - WATER HARVESTING

प्रेम

Typical Unitary Energy Recovery V



CONDENSED WATER RECOVERY

CONSERVE WATER - WATER HARVESTING⁹⁷

WATER REQUIREMENT AND REUSE: DRIP IRRIGATION



प्रेम



CONSERVE WATER - WATER HARVESTING



CONSERVE WATER - WATER HARVESTING

प्रेम



SUSTAINABLE ARCHITECTURE

CONSERVE POWER



CONSERVE WATER



GENERATE POWER



GO GREEN



NOW THERE IS MUCH MORE TO FACADES ...

The New Concept: Utilizable Features / Products

SOLAR ENERGY

Sun gives us unlimited natural

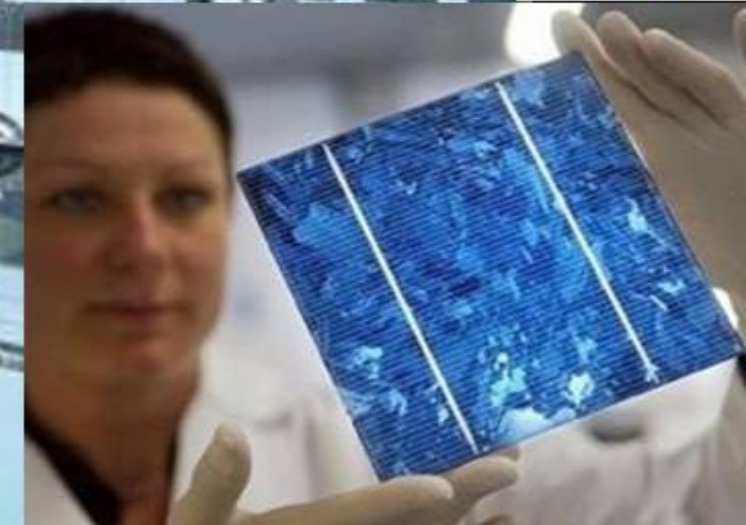


SOLAR PANELS ON BUILDING FACADES



NOW THERE IS MUCH MORE TO FACADES ... प्रेम

Transparent Solar Panels For Windows



NOW THERE IS MUCH MORE TO FACADES ... प्रेम



TRANSPARENT SOLAR FILMS

The New Concept: Utilizable Features / Products

NANO SOLAR FILMS

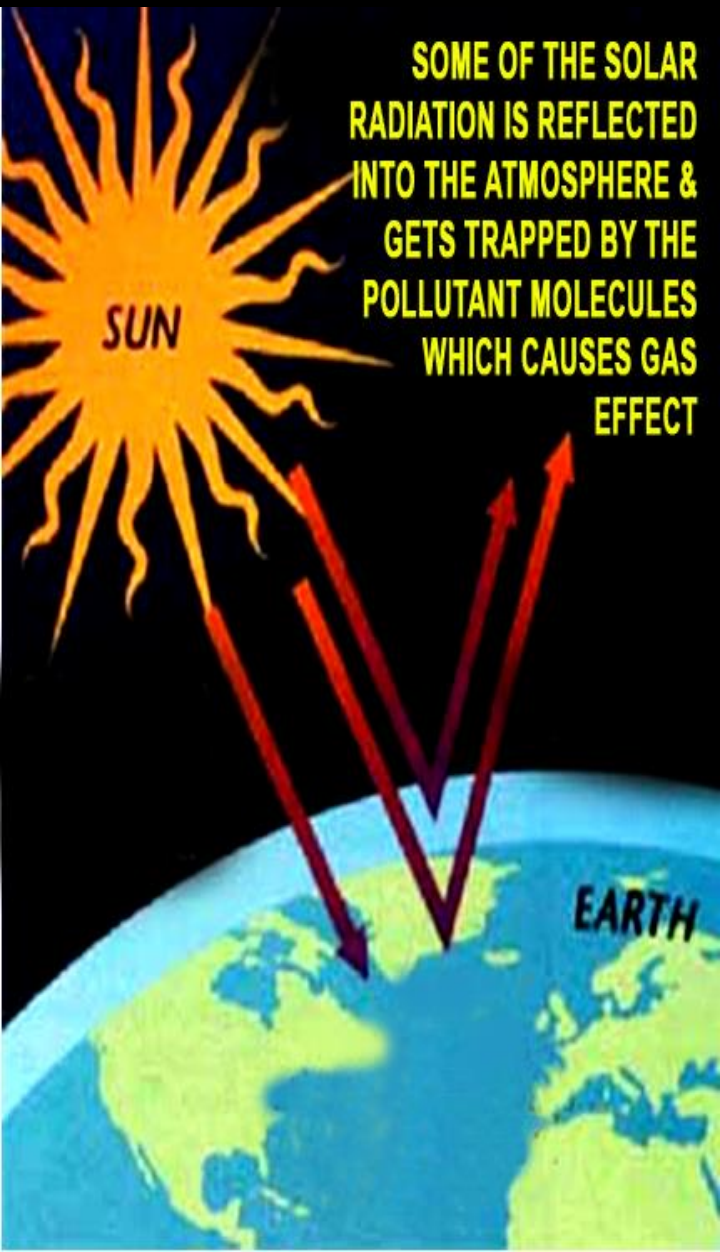
SOLAR ENERGY

प्रेम



**'NANO' SOLAR FILMS: FIXED ON VIRTUALLY ANY SURFACE;
VIZ. GLASS, CURVED ROOF, ACP FAÇADE PANES, ETC. . . TO GENERATE SOLAR ENERGY**

GREEN HOUSE EFFECT



NOW THERE IS MUCH MORE TO FACADES प्रेम

INTEGRATED CONCENTRATING (IC) DYNAMIC SOLAR FACADE

Next Generation High-

Efficiency Solar Power

Systems for facades

completes the challenges for

low-cost shading systems



NOW THERE IS MUCH MORE TO FACADES प्रेम

INTEGRATED CONCENTRATING (IC) DYNAMIC SOLAR FACADE

Next Generation High-

Efficiency Solar Power

Systems for facades

completes the challenges for

low-cost shading systems



NOW THERE IS MUCH MORE TO FACADES AND INTERIORS ...

प्रेम







SUSTAINABLE ARCHITECTURE

CONSERVE POWER



CONSERVE WATER



GENERATE POWER



GO GREEN



35



Go Green

It's a LIFESTYLE



BANGALORE GARDEN CITY





Sustainable Green Architecture considers the effects on people and the Environment.



Green buildings are not only designed for a present use, but consideration is also be given to future uses as well.

GREEN SUSTAINABLE BUILDINGS



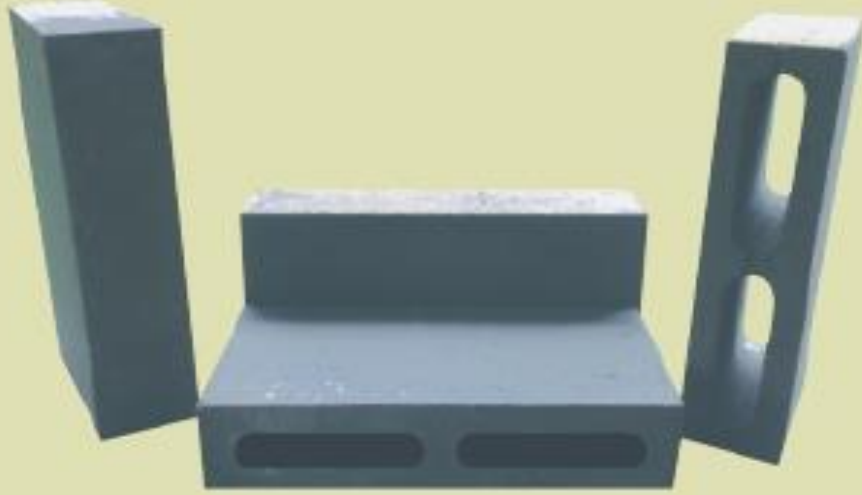
प्रेम

GREEN PLANTATIONS WITHIN THE BUILDING





The New Concept: ECOFREINDLY CONSTRUCTION MATERIALS



Solid and Hollow Blocks



**FLY-ASH
BLOCK WALL**

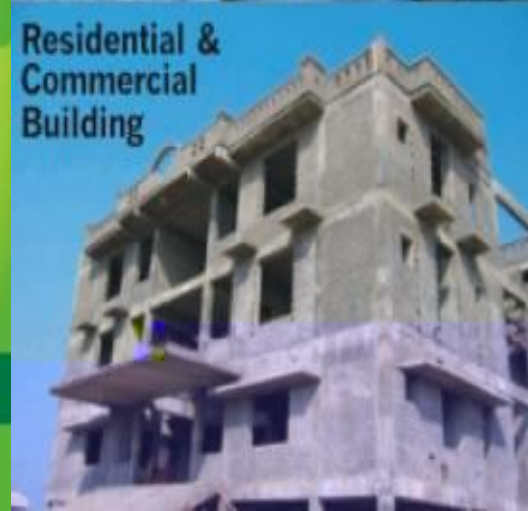
प्रेम



Compound Wall



Recycled and environment friendly



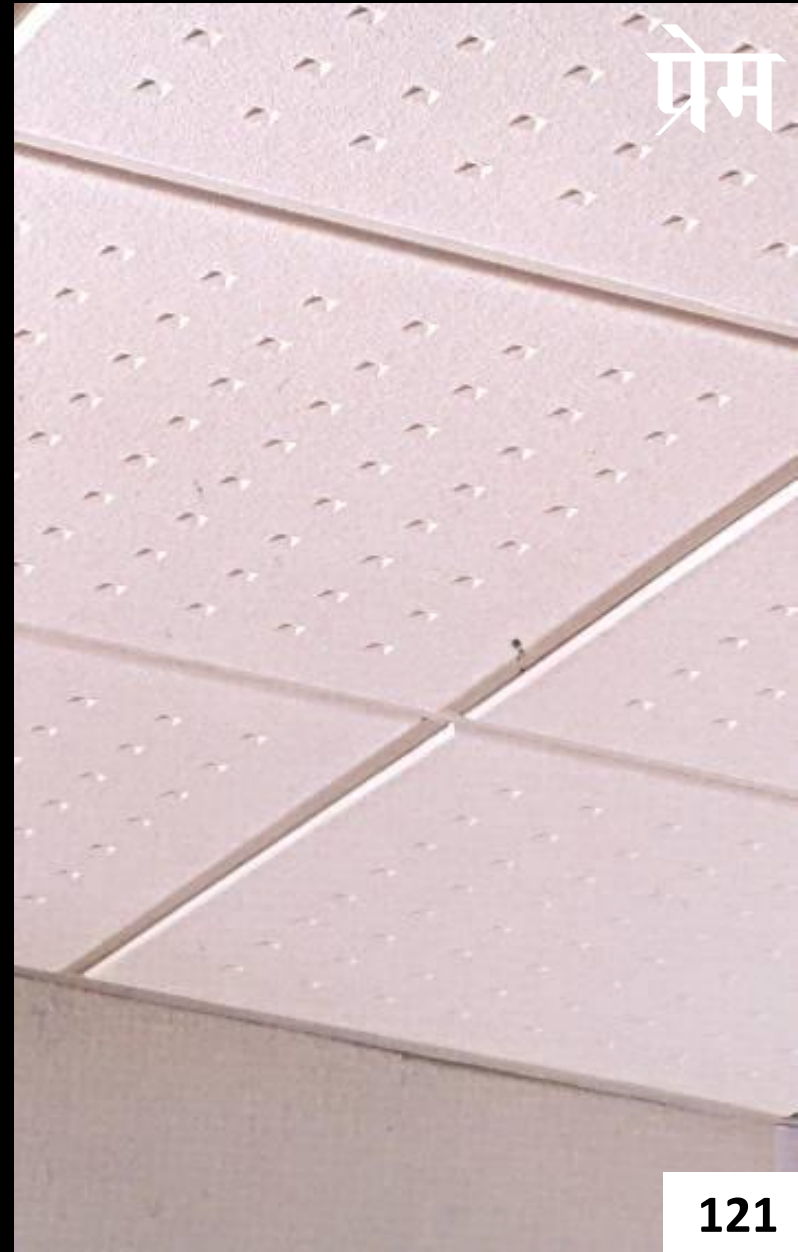
Residential &
Commercial
Building



Warehouse

The New Concept: ECOFREINDLY CONSTRUCTION MATERIALS

LOW V.O.C. PAINTS & CEILING

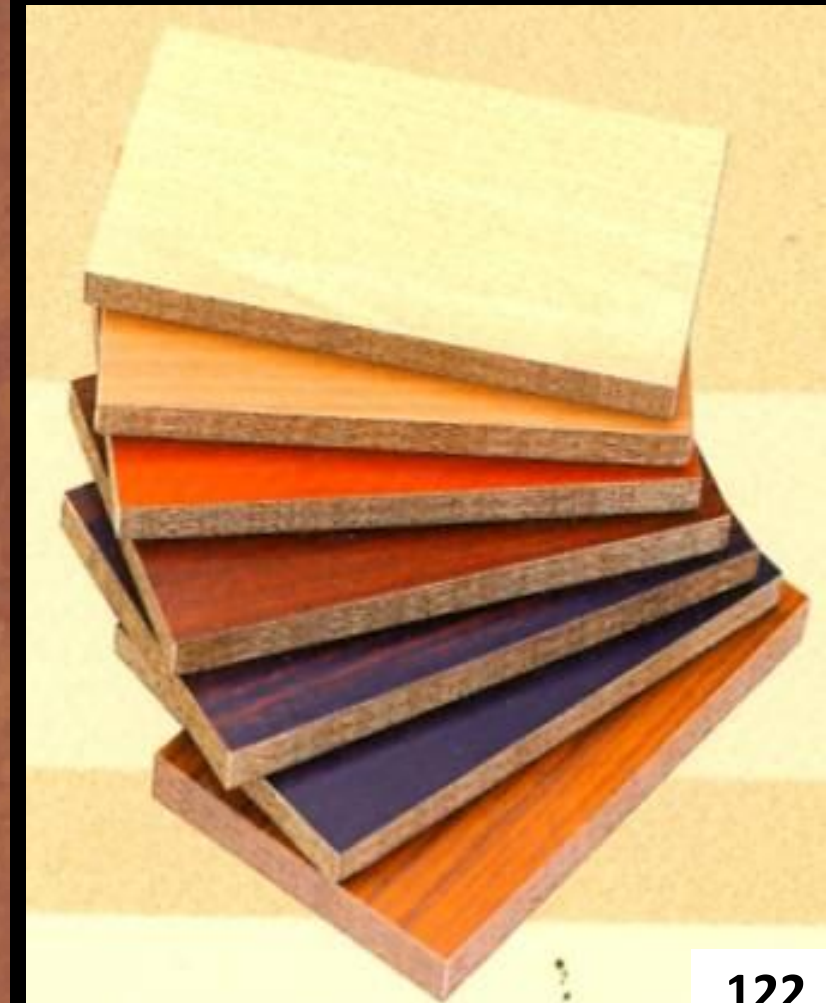


प्रेम

The New Concept: ECOFREINDLY CONSTRUCTION MATERIALS

प्रेम

ECO BOARDS





Certified Wood from Certified Forest

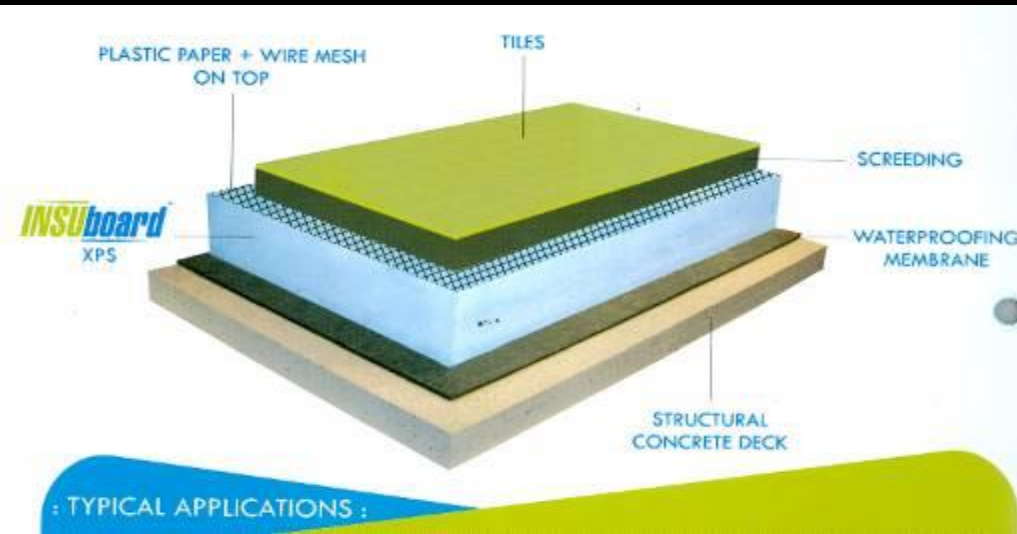
Forest Stewardship Council Certification

10  **>** **90** 

**Only 10% of the forests are certified.
Make sure you're a part of it.**



The New Concept: ECOFREINDLY CONSTRUCTION MATERIALS INSULATIONS



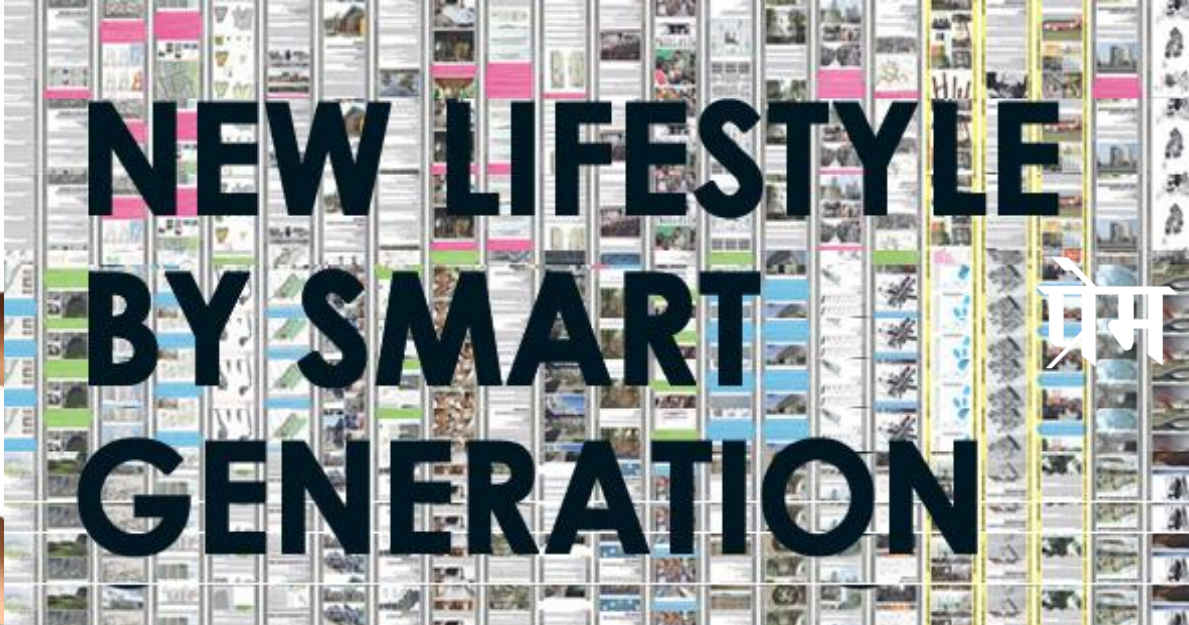
The New Concept: ECOFREINDLY CONSTRUCTION MATERIALS SPRAY FOAM INSULATIONS



The New Concept: ECOFREINDLY CONSTRUCTION MATERIALS WATER AND THERMAL INSULATIONS



प्रेम



SMART PEOPLE USING SMART GADGETS...



SMART PEOPLE USING SMART GADGETS...

प्रेम



SMART GADGETS FORM SMART HOMES प्रेम

SUSTAINABLE SMARTHOME

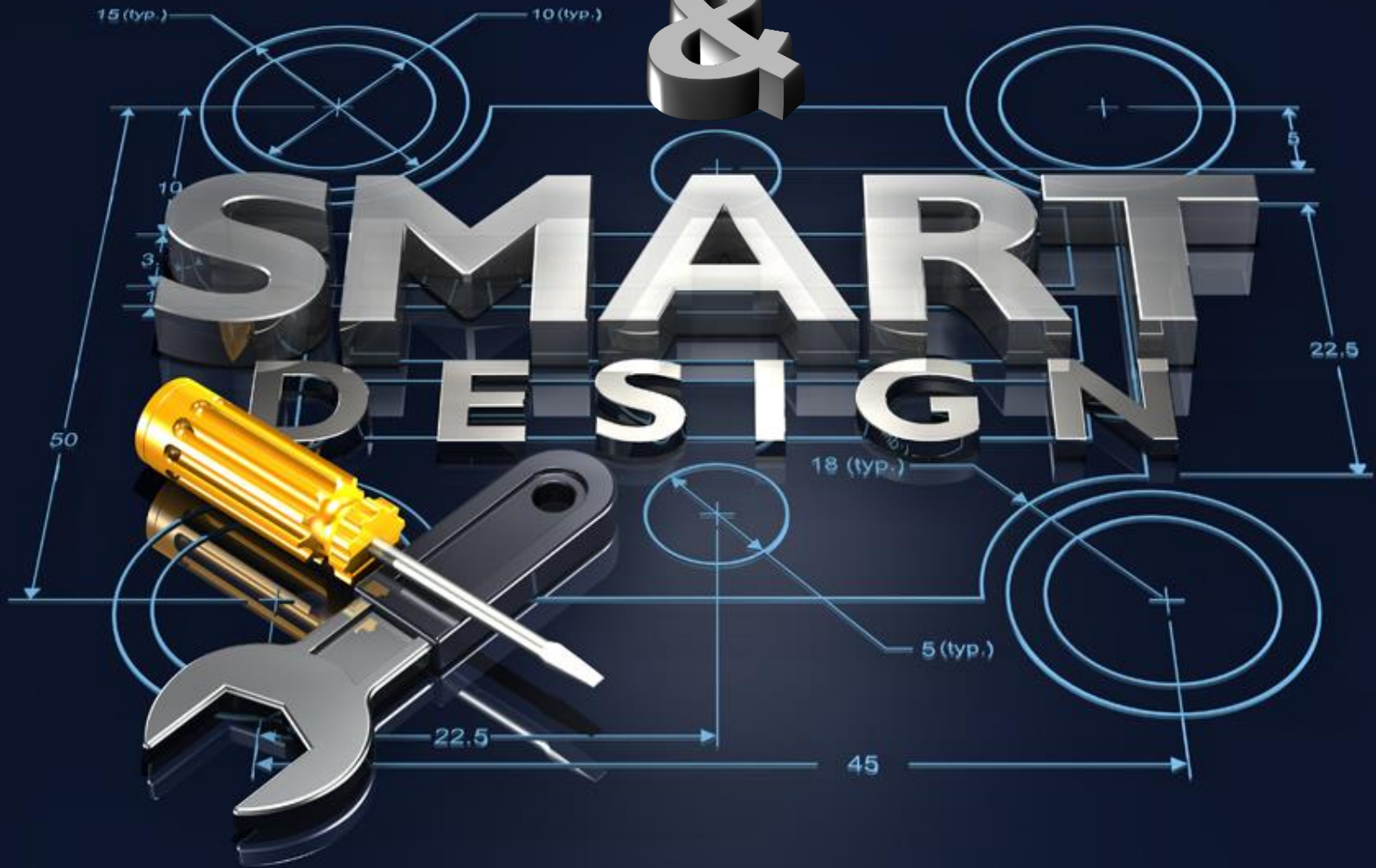
- TEMPERATURE
- VIDEO
- AUDIO
- SHADES
- CAMERA
- LIGHTING
- LEAK DETECTION
- SECURITY
- IRRIGATION
- EMAIL NOTIFICATION
E-Mail
- POOL SPA
- MULTI-HOME

SUSTAINABLE

प्रेम

&

SMART DESIGN



SMART HOME INTEGRATE TO SMART BUILDINGS... प्रेम

... to SUSTAINABLE SMART CITY



SUSTAINABLE

INTELLIGENCE

INTEGRATION

AUTOMATION



प्रेम

SMART HOME

SMART BUILDING

SMART CITY

ENGINEERING & ARCHITECTURAL CHALLENGES :

- **ENERGY EFFICIENCY**
- HVAC
- **FIRE SAFETY**
- WATER SUPPLY
- **SERVICES**
- AUTOMATION
- **WASTE MANAGEMENT**
- SECURITY
- **VERTICAL TRANSPORTATION**

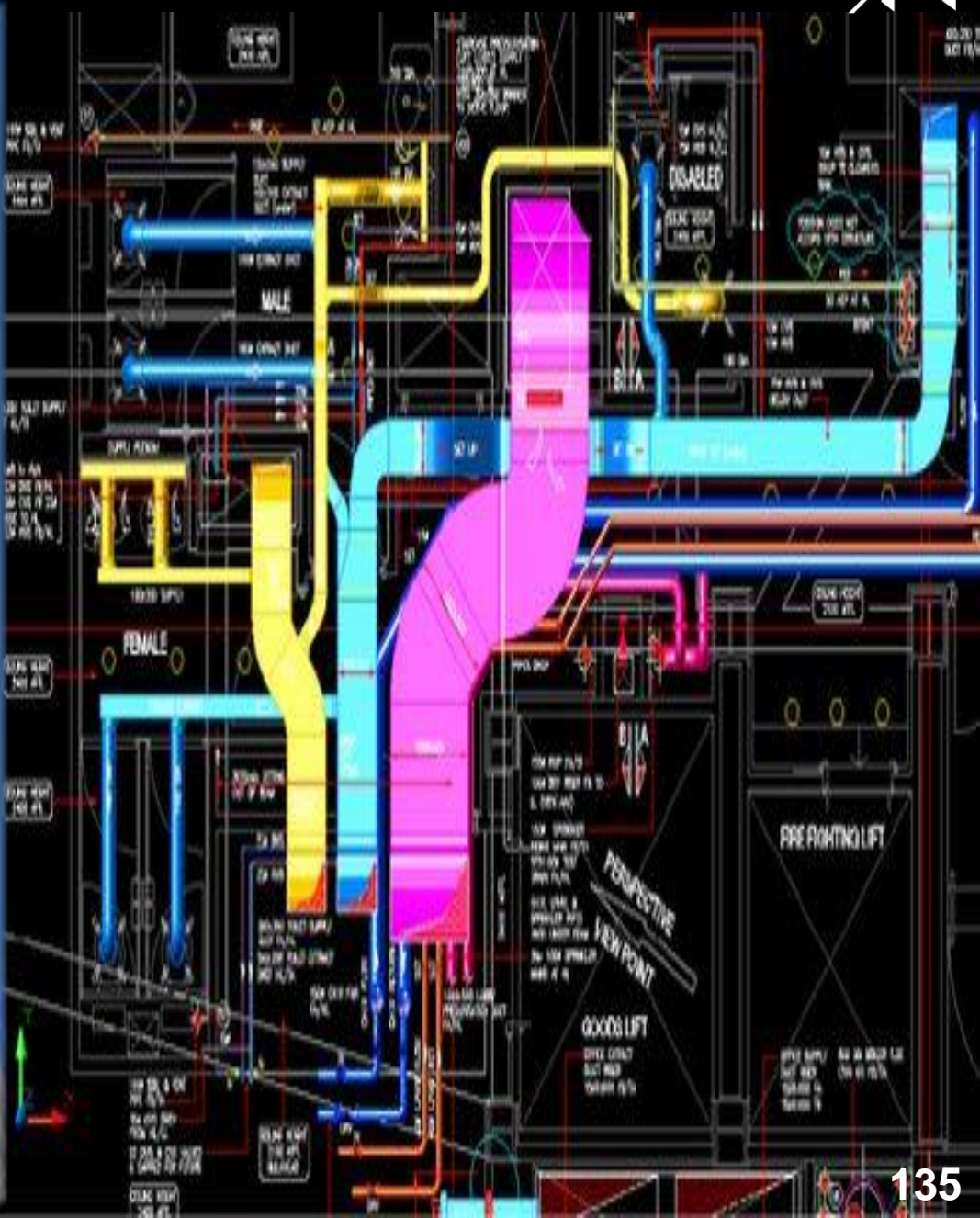
- PLANNING
- BUILDING FORM
- STRUCTURAL ELEMENTS
- FAÇADE

SUSTAINABLE ARCHITECTURE

- CONSERVE POWER
- CONSERVE WATER
- GO GREEN
- GENERATE POWER

SMART BUILDING SERVICES...

प्रेम



SMART VERTICAL TRANSPORTATION... प्रेम





SMART FIRE EXIT PLANNING...

प्रेम



SMART FIRE SAFETY...

प्रेम



INTELLIGENT BUILDING MANAGEMENT SYSTEMS

SMART GRID

प्रेस



SUSTAINABLE ARCHITECTURE IS A COMMON SENSE ARCHITECTURE

प्रेम

PLANNING

BUILDING
FORM

STRUCTURAL
ELEMENTS

FACADE



**India's First Gold Graded Green Township
HUDCO Green Design Award 2015**



RESIDENTIAL TOWNSHIP FOR HMEL AT BHATINDA



GREEN Corporate Residential Township received 'Gold' Grading for environmental clearance.







GREEN AFFORDABLE NEW-HABITAT

प्रेम



GREEN AFFORDABLE NEW-HABITAT प्रेम



GREEN AFFORDABLE NEW-HABITAT प्रेम



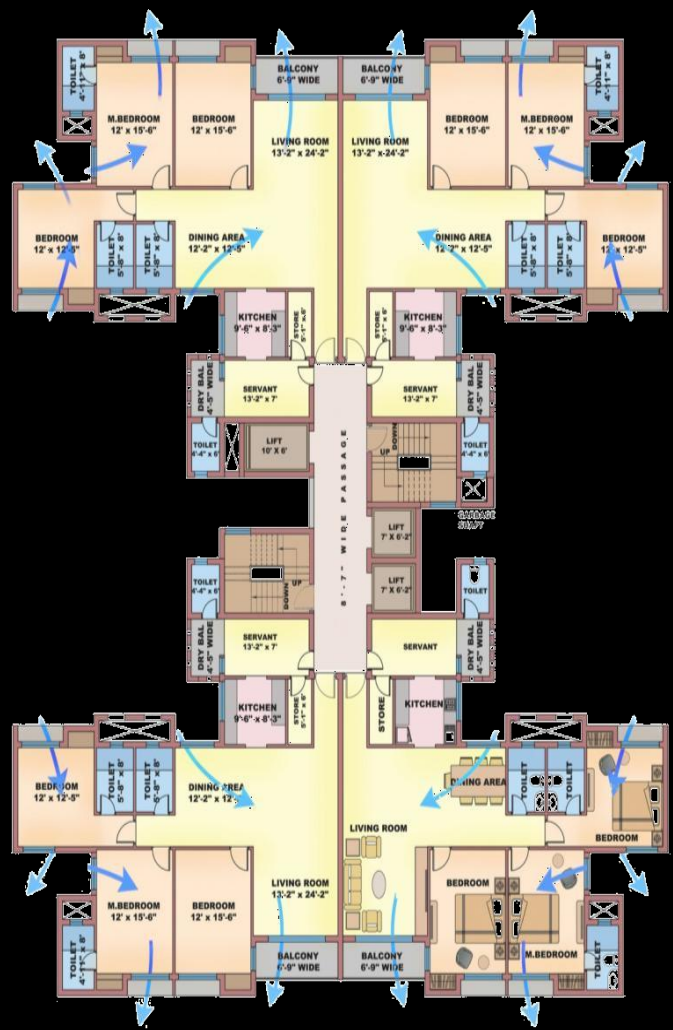
GREEN AFFORDABLE NEW-HABITAT

प्रेम





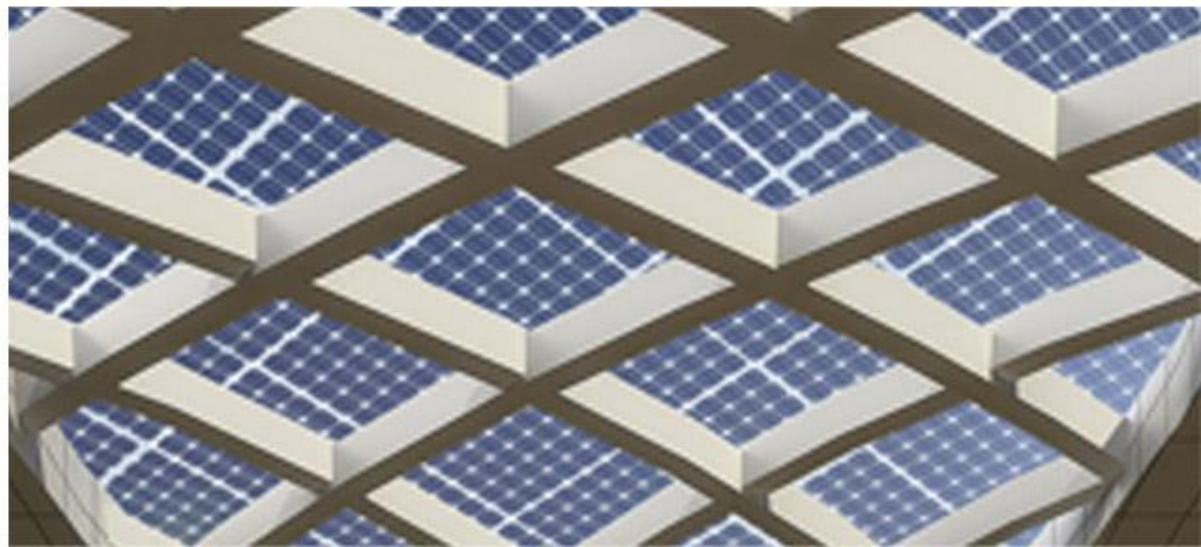
प्रेम





प्रेम







JNPP TOWNSHIP



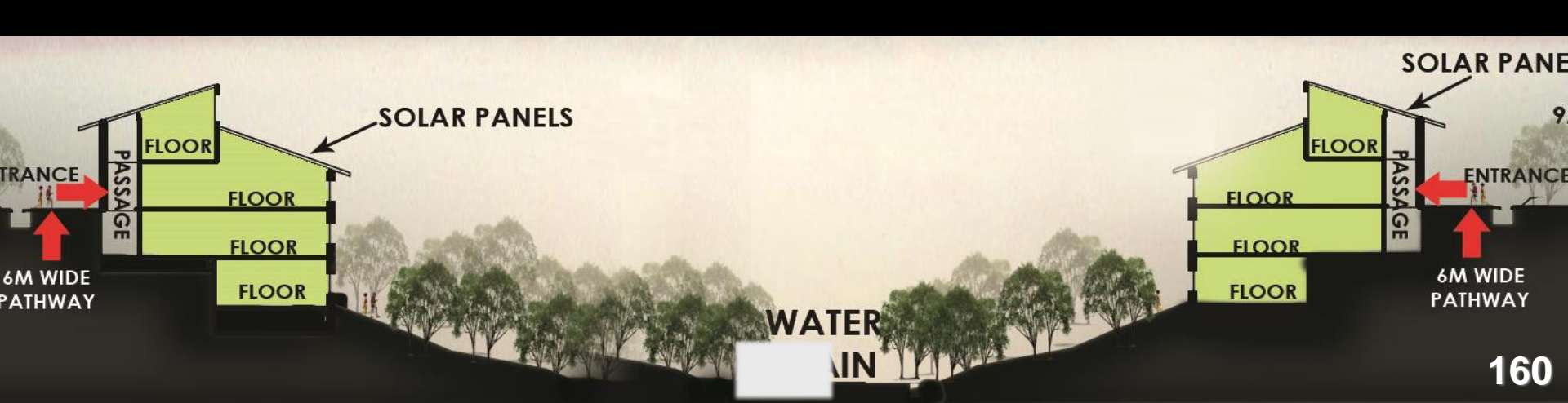


RESIDENTIAL TOWNSHIP FOR JNPP AT RATNAGIRI 157





CENTRAL UNIVERSITY AT KASHMIR

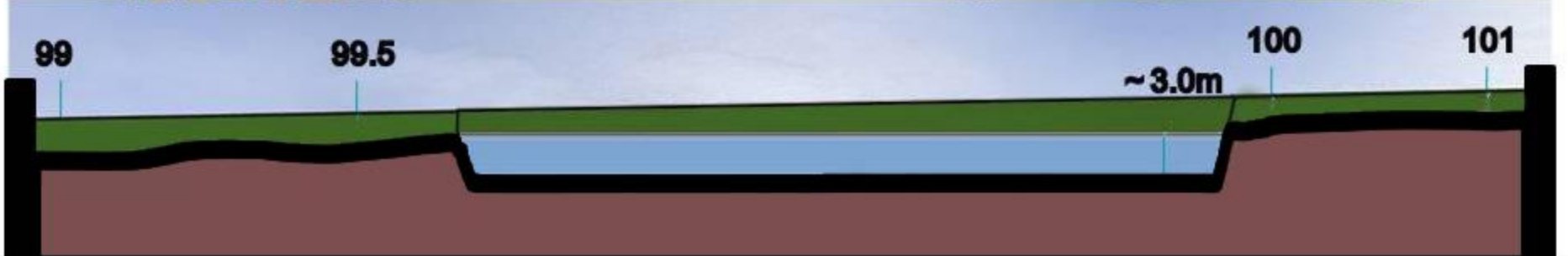






CENTRAL UNIVERSITY AT KASHMIR

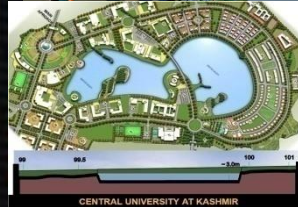




CENTRAL UNIVERSITY AT KASHMIR



प्रेम



Thank you

The logo consists of the Hindi word 'प्रेम' (Prem) rendered in a bold, white, sans-serif font. The characters are stylized with sharp, angular edges and a modern, geometric feel. The 'प' (pa) and 'म' (ma) are connected at the top by a horizontal bar, and the 'र' (ra) is integrated into the 'म'.

ARCHITECT PREM NATH – INDIA

PREM NATH AND ASSOCIATES, MUMBAI

Email : prempna@premnath.com

www.premnath.com