



# Panache

Creating Cool Green Cities!

Energy Saving & Protective Building Enveloping!



**Panache Green Tech Solutions Pvt. Ltd.**

## ACHIEVEMENTS



**POWER OF IDEA  
AWARDS !**



**Research Project for DOE , US**  
**Berkeley Lab Project in India To Measure**  
**Impact of Pollution on Cool Roofs**  
October 13, 2011  
Julie Chao (510) 486-6491 [JHChao@lbl.gov](mailto:JHChao@lbl.gov)



**GSEP PARTICIPATION IN US, DOE,**  
**REPRESENTING INDIA**

## GREEN PRO CERTIFICATION ACHIEVEMENT



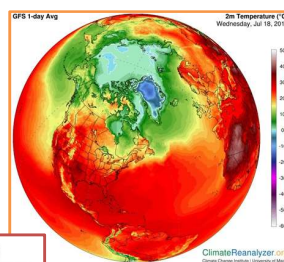
## CIA AWARDS 2018



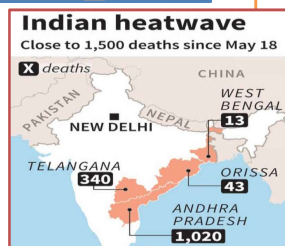
## IPCC Alarms !



**Deadly threat of Climate Change Risks...  
With Increase in 0.5°C Temp. Also !**



Earth's average temp  
increasing between 2-7  
degree C this century!



The Future We Want .... &  
What Our Planet Needs !!



THE COOL GREEN CITIES !!



COOL INSULATED WATERPROOF

BUILDING ENVELOP

ROOFS & WALLS

VISIT STALL  
NO: 03

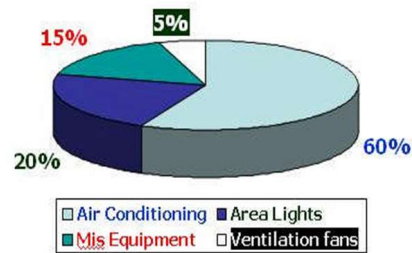


01 SOLAR INSULATION  
COOL TOPS for Roofs , COOL WRAP – Wall Paints

02 THERMAL INSULATION  
INSULMIX Insulated Roof Screed / Wall Plaster

03 WATER PROOFING  
Waterproofing Solutions for Roofs & Walls

## Typical Energy Consumption Pattern in Buildings:



## Most Important Energy Saving Approach In Buildings

Insulation of the Envelop  
First Step to Improve Energy Efficiency!  
Solar Insulation & Thermal Insulation

The Potential for Energy Savings is 40 – 50% in Buildings

## ROOFS – COMPONENT OF BUILDING ENVELOPE!



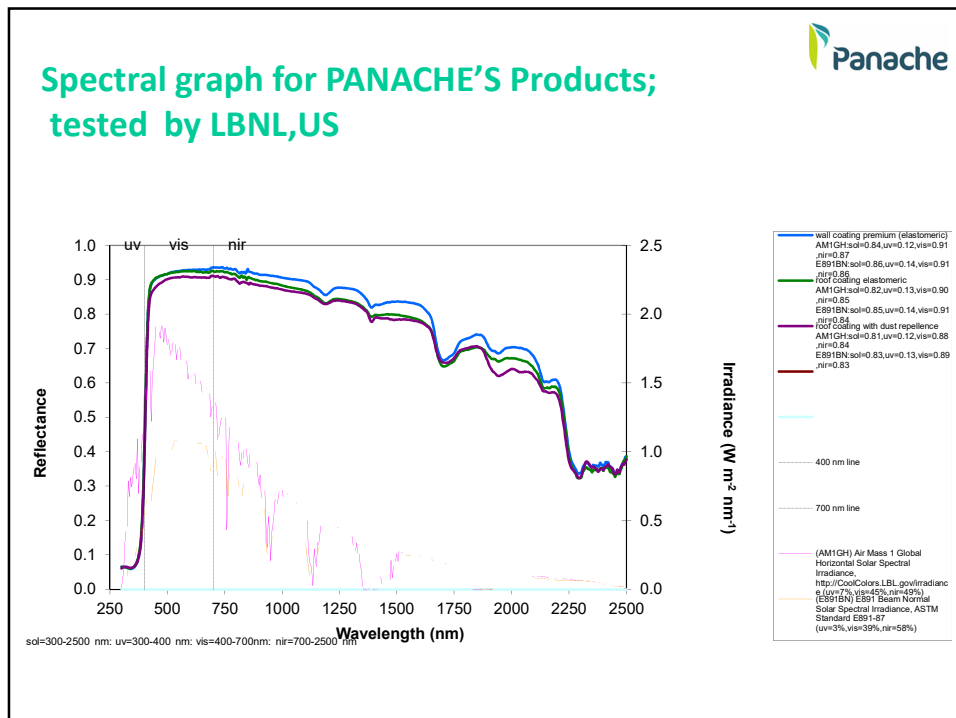
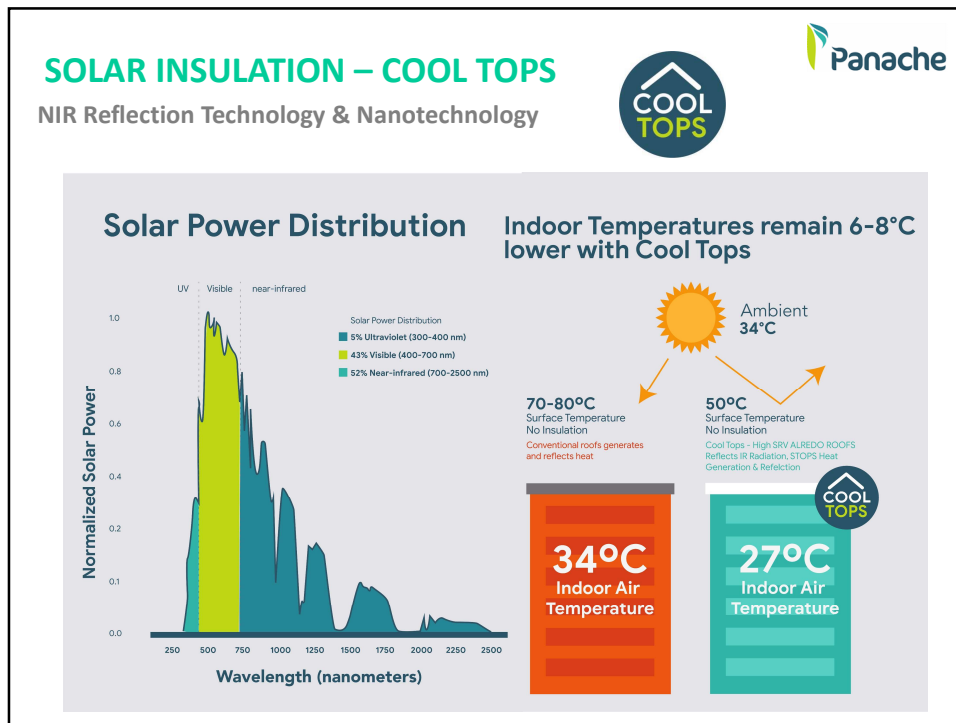
HIGH SRI COATINGS FOR ROOFS

ROOFS –  
COOL TOPS



**COOL ROOFS** Has Global Cooling Potential !





## BENEFITS FROM – COOL TOPS



1. Reduces City Temp by 2-3 Deg. C
2. Reduces surface temp of -
  - I. Cement substrate by 18-20 Deg. C
  - II. Metal substrate by 20-25 Deg. C
3. Gives Electricity saving by 35 %
4. Increases Thermal Comfort by 60%.
5. Increases Solar Cell Efficiency !
6. Effective on all type of surfaces/ Materials.
7. Reduces Heat Pollution!

## PANACHE'S – COOL TOPS !



### HIGH SRI / HIGH ALBEDO COOL TOPS (SRI - 107/109)

TRANSEAL	Top most transparent dust & water repellent layer (1-2 coat)
MX COOL TOP	Highly reflective top layer (2 coat)
MX COOL GUARD	Reflective base layer (1-2 coat)
IPS / RCC / CHINA MOSAIC	

**CIA AWARDED SYSTEM**  
Designed for Indian Atmosphere



## PANACHE'S – COOL TOPS !









**Energy-Absorbing Black Asphalt Roof**

**Reflective Roofs Reflect Sun's Energy**

TRANSEAL	Top most trasparent dust & water repellent layer (1-2 coat)
MX COOL TOP	Highly reflective top layer (2 coat)
ASPHALT PRIME	Asphalt Leech Resistant Coating (1-2 coat)
ASPHALT BASED ROOF	

## COOL TOPS on Cemented roofs





Figure Before Cool Roof Installation

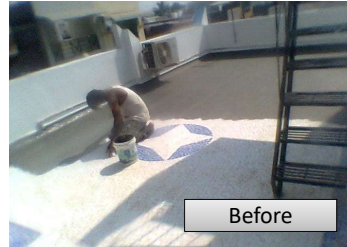


Figure After Cool Roof Installation

### COOL TOPS on China Mosaic



Before



Before



After

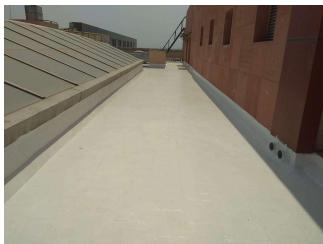


After

### Cool Tops – Metal Corrugated Industrial Shed



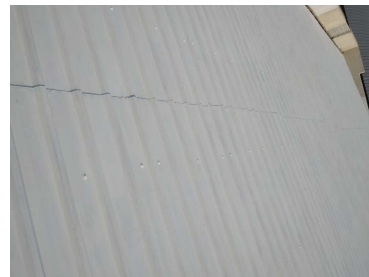
**COOL TOPS – RAILWAY PROJECTS –**  
ILBS Hospital, VASANT KUNJ



**COOL TOPS – RAILWAY PROJECTS –**  
ILBS Hospital, VASANT KUNJ



**COOL TOPS – RAILWAY PROJECTS –**  
**METRO HEAD OFFICE, BEGUMPET HYDERABAD**



**COOLING APPLICATIONS -**  
**INDUSTRIAL TANKS**



**FOOD CARRIER**





## CONART- BUNKER



21

## CONART- BUNKER

BEFORE



AFTER



22

## FILATEX- METAL SHED



23

## FILATEX- METAL SHED

BEFORE



AFTER



24

## SIMULATION REPORT FOR PAY BACK & SAVING



A simulation Report generated for 2000 sq ft roof ; SRI 107

### Cool Roof Calculator V3

[Home](#) | [Register](#) | [Login](#) | [Calculator](#) | [Glossary](#) | [Material Database](#) | [Documentation](#) | [Contact Us](#)

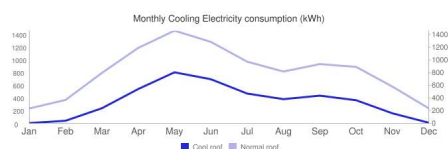
	Total savings (kWh/year)	Savings per unit area (kWh/m <sup>2</sup> per annum)	Saving in cost (INR/year)
Savings in cooling	5,007.13	26.49	Rs. 40,057.04
Savings in heating	-123.91	-0.66	Rs. -991.28
Overall savings	5,735.85	30.35	Rs. 45,886.80

Note: Negative value means loss

The annual savings achieved due to cool roof as specified in compared to normal roof, is **5,736 kWh**, which results in an annual savings of **Rs. 45,887**

EndUseCategory	Electricity [kWh]		% Saving
	Normal roof	Cool roof	
Heating	0	123.91	0
Cooling	8697.64	3690.51	57.57
Interior Lighting	1072.85	1072.85	0.00
Interior Equipment	1604.31	1604.31	0.00
Fans	1533.36	680.73	55.61
Pumps	0	0	0
Heat Rejection	0	0	0
Total	12908.15	7172.3	44.44

Simple payback is: **0.41 years**



## High Albedo Paints - Energy Efficiency Electronic Manufacturing Facility, Chennai

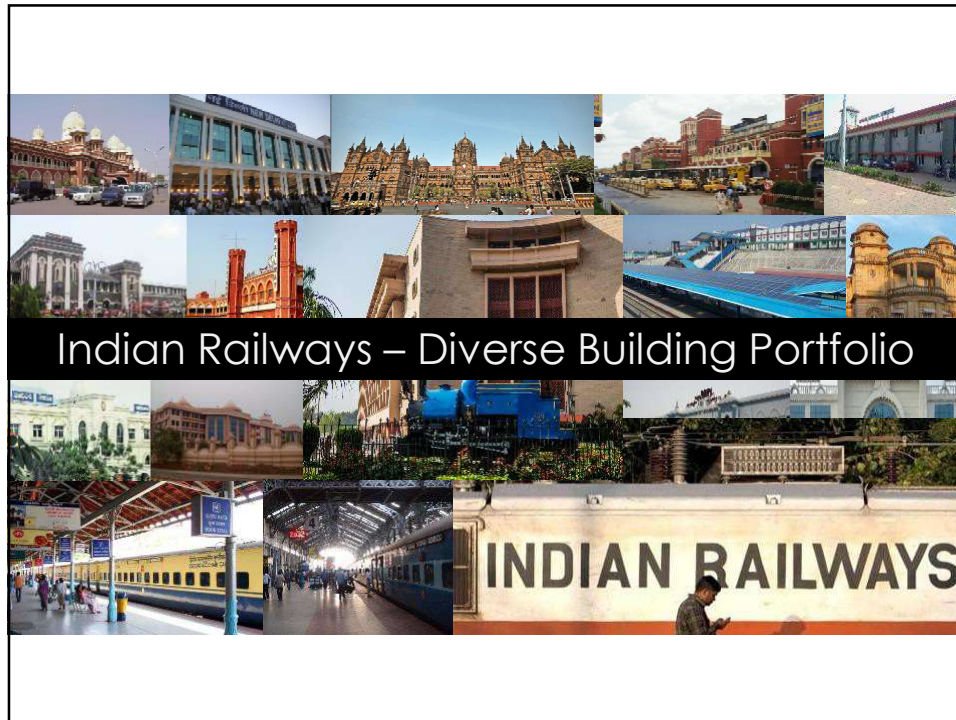


### Design Parameters

Factory floor area	8021 sq-m
Location	Chennai
Factory set point temperature	28°C

Case 1 – Without High SRI Coating		Case 2 – With High SRI Coating	
Surface SRI	50	Surface SRI	>100
Emissivity	0.84	Emissivity	0.91
Solar Reflectance	0.46	Solar Reflectance	0.95
Tonnage Required	402 TR	Tonnage Required	385 TR
Energy Consumption	901 MWh	Energy Consumption	724 MWh
Roofing Material - Galvalume Sheet		Roofing Material - Galvalume Sheet with SRI Coat	
Total CAPEX (INR)	2.73 cr	Total CAPEX (INR)	2.84 cr

**1.77 Lakh Units Saved Per year With Payback Period – 10 Months**

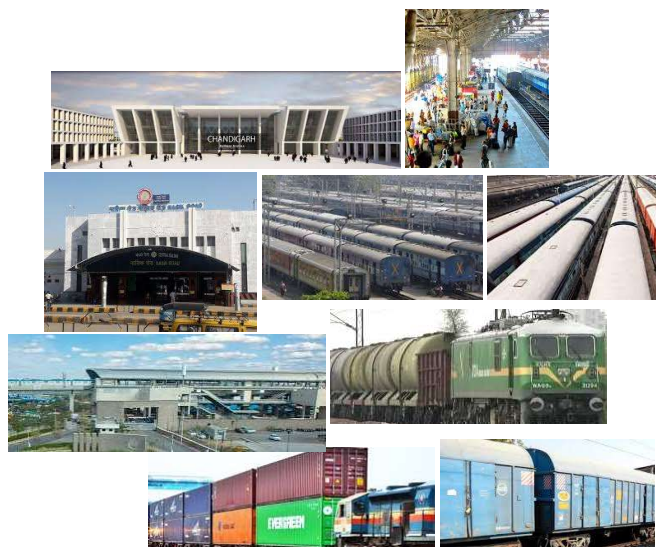


## COOL TOPS FOR RAILWAYS



### AREA OF COOL TOPS APPLICATIONS IN RAILWAYS

1. HOUSING COLONIES
2. COLLEGES
3. TRAINING CENTRES
4. WAITING LOUDGES
5. ADMIN BUILDINGS
6. RAILWAY STATIONS
7. METRO STATIONS
8. RAILWAY SHEDS
9. WARE HOUSES
10. GOODS TRAIN
11. PASSENGER TRAINS



## COOL TOPS FOR RAILWAYS



### INDIAN RAILWAYS NETWORK

**Fourth Largest Railway Network in the World**

#### HYDERABAD RAILWAY STATIONS

Secunderabad Station & surroundings	34308
Nampally / Hyderabad railway station	8327
Kacheguda Railway Station	17518
<b>TOTAL AREA</b>	<b>60153</b>

#### ALL OVER INDIA

**Almost 9000 Railway Stations**

**Total Area covered by Railway construction thus can be assumed as more than **Cr 58,50,00,000 m<sup>2</sup>****

**THIS AREA CAN CONTRIBUTE TO REDUCE TEMPERATURE AT CITY LEVEL !**

## COOL TOPS FOR RAILWAYS



**TARU RESEARCH PROJECT -  
COOL TOPS SYSTEM OF PANACHE INSTALLED IN SURAT / INDORE**

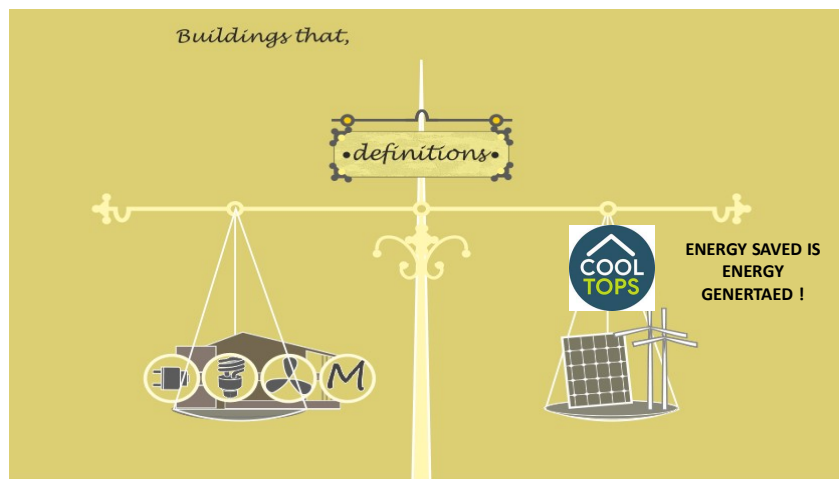
1. 4° C OF TEMPERATURE DIFFERENCE UNDER CONCRETE ROOF
2. THUMB RULE – 1° C REDUCTION SAVES 6% OF ELECTRICITY
3. 4°C DROP DOWN IN TEMPERATURE - THUS REDUCES DIRECTLY 24% OF ELECTRICITY !

**Min Cr 58,50,00,000 m<sup>2</sup> contributes to Reduce Heat Island Effect !**

**Billions of people travelling through Rails can be benefited from the Heat Stress & Health Issues due to HEAT !**

55% AREA CONCRETE ROOF	Construction Life
30 % OF THIS IS AIR CONDITIONED	Electricity saving
25 % NON CONDITIONED	Thermal Comfort
45% IS METAL SHEET	Thermal Comfort
TRAIN BOUGIES	Passenger Comfort
GOODS CARRIERS	Product Quality

## PLANS FOR NET ZERO RAILWAY BUILDINGS ..



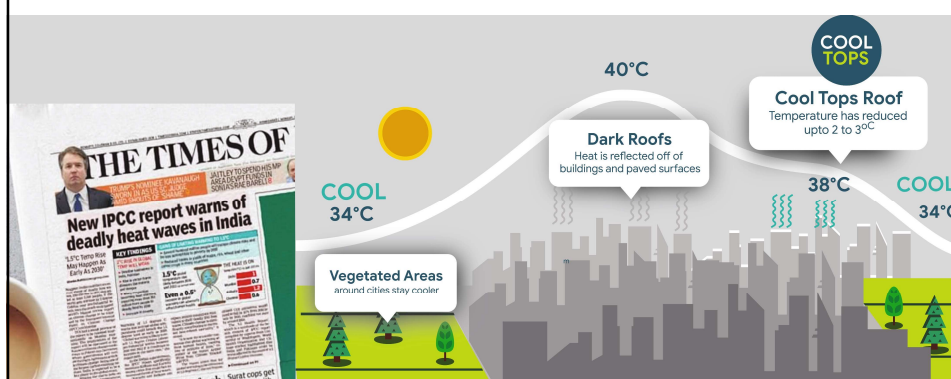
**COOL BUILDING ENVELOP IS MOST IMPORTANT COMPONENT FOR ANY NET ZERO BUILDING !**

## TO COMBAT CLIMATE THREATS .....



**WIDE SPREAD INSTALLATION OF COOL ROOFS IS THE MOST ECONOMIC & SIMPLE STRATEGY!**

**REDUCING CITY TEMPERATURE BY 2 – 3 °C !**



**REDUCING HEAT ISLAND EFFECT !**



## Live Example of City Temp Reduction by Installation of Cool Roofs



**A Real-World Example of Global Cooling** The whitewashed greenhouses of Almeria, Spain have cooled the region by 0.8 degrees Celsius each decade compared to surrounding regions, according to 20 years of weather station data.

Cool World : A Modest Proposal to Cool the Planet  
by Cooling the Neighborhood  
By- Allan Chen, (510) 486-4210, [a\\_chen@lbl.gov](mailto:a_chen@lbl.gov)

“Cool roofs , Using them is a simple but effective solution to help reduce earth’s climate change and large scale solutions to reducing global warming.”



## OFFICIAL MANDATORY DEMANDS



### Cool Roofs for Cool Delhi

#### Chief Minister's Message



**Sheila Dikshit**  
Chief Minister



GOVT. OF NATIONAL CAPITAL TERRITORY OF DELHI  
DELHI SECRETARIAT, I.P. ESTATE, NEW DELHI-110003  
PHONE: 23392020, 23392030, FAX: 23392111

I am happy that the **Bureau of Energy Efficiency** has prepared a Design Manual entitled **“Cool Roofs for Cool Delhi”** which will provide low tech, low cost solutions to citizens of Delhi for cooling their homes and reducing greenhouse gas emissions. Cool Roofs is an innovative effort to reduce cooling costs, energy usage and greenhouse gas emissions by applying reflective, white coating to rooftops, and is one of the quickest and low cost way for reducing our global carbon emissions. The measures suggested in this Manual will provide a solution to urban cities for mitigating greenhouse gas emissions through converted white cool roofs. Delhi can take a lead role in adopting cool roof technology.

I hope that this document will provide a guideline to all citizens of Delhi and will go a long way in combating Climate Change.

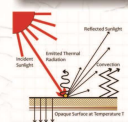
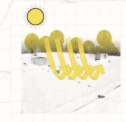
*Sheila Dikshit*

Sheila Dikshit  
Chief Minister, Delhi

Now approved  
& demanded by

IGBC  
GRIHA  
LEED  
EDGE  
ECBC  
BEE  
ECO GREEN ...

& many other  
organizations!



## Identifying the Right Product / Vendor for COOL TOPS



- High Reflectivity & High Emittance
- Certified High SRI
- **Dust Repellence / Low Dirt pick up**
- **Water Protection**
- High substrate bonding
- Good abrasion resistance
- High weather resistance
- Anti algae anti fungus properties
- UV Stability
- Good Reference clientele

## SOLAR INSULATION – COOL WALL PAINTS

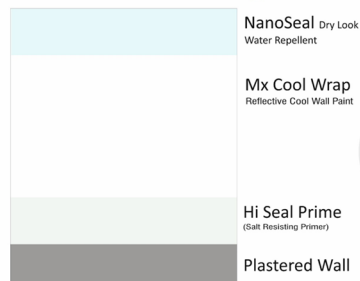


### Mx Cool Wrap<sup>TM</sup>

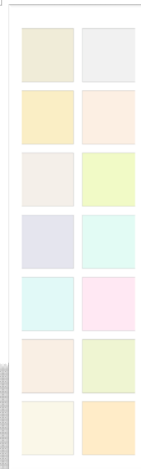
Reflective Wall Coating

Technology -  
IR Reflection &  
Nanotechnology

**Contribute to Cooling of Walls & Buildings**



Pastel Colors Available



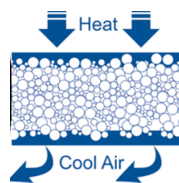
## COOL WRAP – Cool Homes Without AC!



## INSULATION – INSULMIX ROOFS SCREED & WALL PLASTER



**INSULMIX<sup>TM</sup> SCREED**  
INSULATED SCREED



**INSULMIX<sup>TM</sup>**  
INSULATED WALL PLASTER



**COMPLIES WITH SPECS OF GREEN BUILDINGS**  
IGBC , GREEN PRO, GRIHA, LEED...ETC.



**VISIT STALL NO: 03**

**NO BUILDING CAN BE GREEN WITHOUT COOL  
BUILDING ENVELOP**



**Creating Cool Green Cities!**

**Panache Green Tech Solutions Pvt. Ltd.**

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