

# *Cool Roofs and the **Green** Lexicon*



**THERMATEK®**

*Thermal Barriers*

[www.thermatek.co.in](http://www.thermatek.co.in)

# THERMATEK®

*Thermal Barriers*



ISHAAN INDUSTRIES has emerged from parts of and as a spin-off from the activities of the Parshuram Potteries Ltd, the pioneer in the manufacture of ceramicware in India. The company manufactures and markets dimensionally, stable thermal insulation products under the brand name **THERMATEK®**, such as **Thermatek Heat Resistant Terrace Tile, Thermatek Cool Mortar and Thermatek Heat Reflective Paint** that preclude heat ingress and concomitant temperature cycling thus assuring cool comfort indoors.

With Thermatek, you have a sustainable cooling solution you can absolutely rely on, one that has stood the test of time and goes beyond industry standards. It is suitable for a wide range of projects in hot climatic conditions on multiple substrates.

## Anchor

- Life cycle performance, energy conservation, recyclability and environmental protection attributes
- Neutral and good weatherproofing ability
- Good workability and ease of installation
- Mechanical snap-in method to eliminate the use of toxic substances
- Synthesis manufacturing technology process that raises sustainability credentials.

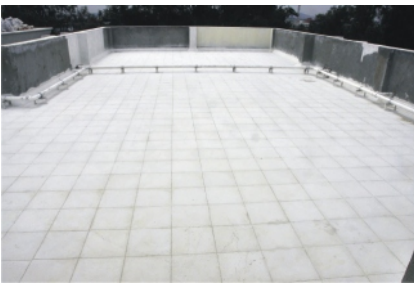
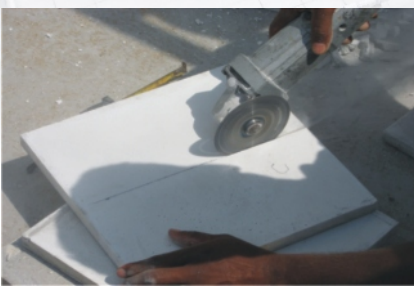
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Thermatek products are  
**Test certified by  
TUV & NMCTL,  
Singapore**





# Heat Resistant Terrace Tiles



A unique, patented, stand-alone, over deck, white cement bonded, multilayered, non-porous, impervious, dense, dry-look, and reflective thermal insulation product designed to integrate seamlessly with the concrete roof system. It's like a plain tile straight along its length and breadth, needing waterproofing sarking underneath.

The product is manufactured to last a lifetime with a thoughtful balance of new patented technology and unique manufacturing process using non-degradable materials (infrared resistive composition).

The product admeasures 300 mm X 300 mm X 20 mm, weighs approximately 4 kg/tile.

The product is environmentally sound, commercially successful, suitable for a wide range of projects in hot climatic conditions on multiple substrates, and goes far beyond industry standards.

## Benefits:

- Reduced energy costs
- Improved indoor air quality
- Prolonged building life
- Exceptional durability
- Enhanced aesthetic appeal
- Usable terrace space
- Low maintenance requirement
- Higher asset value

Type	White Cement Bounded/Multi-Layered
Appearance	White
Materials Used	Infrared Resistive Composition (Non Degradable)
Weight	4 kg/ft2 (43 kg/m2 )
Tile Thickness	20 MM (Three Bed Layered)
Tile Sizes	300mm x 300mm
Modulus of Rupture (Wet)	53 kg/cm2
Average Water Absorption	7.5
Water Permeability	Impervious to Water
Solar Reflectance Index (SRI)	90.7
Reflectance	0.73
Emittance	0.93
IS Standard	As per IS 1237-1980
Method of Fixing	Just like any mosaic tiles
Polishing	Just like mosaic tiles
Status	Indian Patent awarded, Foreign Patents pending



# THERMATEK® Cool Mortar

THERMATEK COOL MORTAR is a carefully proportioned blend of white cement and proprietary ingredients that will provide insulation and high reflectance and ensure a heat barrier to your building.

When mixed with water, THERMATEK COOL MORTAR produces a high quality mortar with excellent handling and laying characteristics.

THERMATEK COOL MORTAR is ideally suited for use in all forms of masonry work.

When used as a complement to THERMATEK HEAT RESISTANT TERRACE TILES, the THERMATEK COOL MORTAR will provide enough insulation and heat reflectance that eliminates the need for additional insulation like PUF, XPS, Thermacole etc.

Type	Powder form
Appearance	White
Materials Used	Lightweight minerals & modified white cement
Solar Reflectance Index (SRI)	92
Solar Reflectance	0.74
Emittance	0.93
U-Value	0.397 W/m <sup>2</sup> k
Thermal Conductivity	0.451 W/m <sup>2</sup> k
Method of Fixing	Laid as any other mortar
Status	Patent Pending



## Benefits:

- A specialized high albedo product with low thermal conductivity
- Ideal for planned decorative and different surface finishing with heat proofing property
- Strong and high load bearing surface similar to any cement sand mortar
- Ease of application to roof and walls to provide tough, durable and flexible playing surface.
- Less shrinkage and thus less prone to cracks

THERMATEK®

# Heat Reflective Paint

Introducing shortly  
Colored Heat Reflective Paints

in collaboration with  
Institute of Chemical Technology,  
Mumbai (formerly UDCT)

## Time to paint your asbestos or metal or flat roof for cool comfort?

ISHAAN INDUSTRIES, by applying unique expertise in material science and chemical dynamics, now offers you bright white roof reflective paint that insulates you from heat, lasts much longer than 3 years, is cost effective, and environment friendly.

Like THERMATEK Heat Resistant Terrace Tiles, the other signature product of Ishaan, the paint also assures:

- High reflectivity to sun rays, hence keeping interiors cool during hot summer months
- Downscaled thermal load on roof surface
- Flexibility to withstand dynamic motions
- Greater efficiency from existing air-conditioning plant through reduced peak loads
- Significant abatement of Greenhouse Gas resulting from the power saved
- Environmental responsibility



THERMATEK® Heat Reflective Paint is designed to combat overheating in metal or asbestos or flat roof buildings.

## Benefits:

- Reduction in roof surface temperature of around 17 deg C on a hot sunny day
- Maximized Total Solar Reflectance (the measure of the amount of incident terrestrial solar energy reflected from a given surface) - **SRI 90.6**
- Greatly reduced sub-roof temperature
- Easy to use and bonding with minimal surface preparation
- Fast cure at room temperature
- Aesthetically appealing

Type	Powder form*
Appearance	White
Materials Used	Mineral oxides with low heat gain properties
Toxicity	Low VOC
Water Permeability	Resistant to water
Solar Reflectance	0.75
Infrared Emittance	0.79
Solar Reflective Index (SRI)	90.6
Method of Application	Brush applied
Longevity	3-5 years
Status	Patent pending

\* Separate proportionate Binder packs available for different surfaces along with the powder. Wet mix packs also available.





**THERMATEK®**

# Roofing Assembly

## MIXED PRODUCT APPLICATION

(Thermatek Heat Resistant Terrace Tiles +  
Thermatek Cool Mortar)



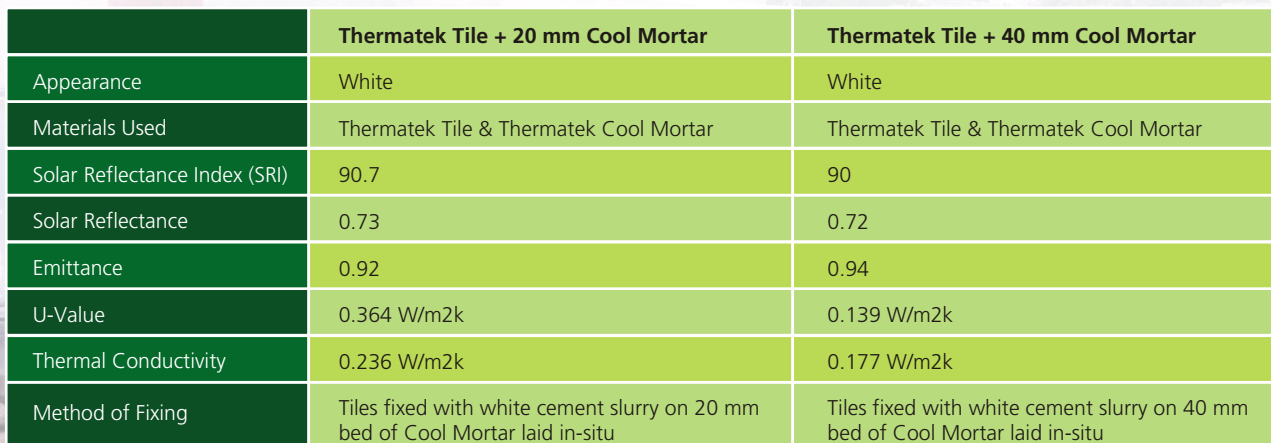
As you strive for high-performing cool roofing system, you should ask yourself how mixed products fit together to assure functional harmony and maximize performance. Such synergetic benefits may well result from the combined application of THERMATEK HEAT RESISTANT TERRACE TILE and THERMATEK COOL MORTAR. This synergetic approach combines a number of high-performance elements as well as individual performance characteristics.

**Test certified by TUV, Singapore and  
Conforms to ECBC / LEED / IGBC Roofing  
standards**

### *Benefits:*

- High performance cool roofing systems
- Economic energy and environmental synergy
- Perfect fit to meet initial plans and specs
- Integrated holistic solution with minimal upfront expenses and still yield sizable cost savings over a building's lifetime
- Best life cycle with critical durability and functionality determinants

	Thermatek Tile + 20 mm Cool Mortar	Thermatek Tile + 40 mm Cool Mortar
Appearance	White	White
Materials Used	Thermatek Tile & Thermatek Cool Mortar	Thermatek Tile & Thermatek Cool Mortar
Solar Reflectance Index (SRI)	90.7	90
Solar Reflectance	0.73	0.72
Emittance	0.92	0.94
U-Value	0.364 W/m <sup>2</sup> k	0.139 W/m <sup>2</sup> k
Thermal Conductivity	0.236 W/m <sup>2</sup> k	0.177 W/m <sup>2</sup> k
Method of Fixing	Tiles fixed with white cement slurry on 20 mm bed of Cool Mortar laid in-situ	Tiles fixed with white cement slurry on 40 mm bed of Cool Mortar laid in-situ





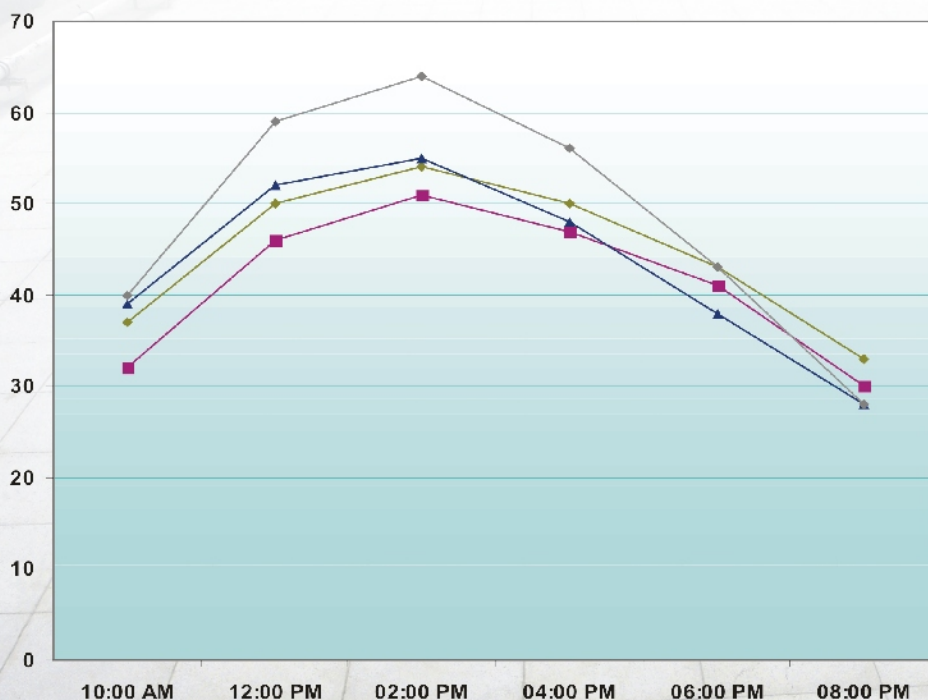
## U-Value compared across the system\*



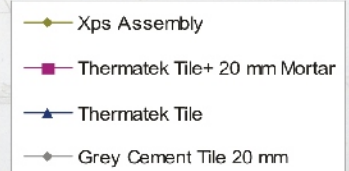
Insulation System	U Value W/m <sup>2</sup> K
XPS 50mm	0.56
XPS 75mm	0.37
Vermiculite 100mm	0.45
Perlite 60mm	0.45
Polyisocyanurate foam 50mm	0.45
Cork/polyurethane composite 60mm	0.45
Cellular Glass 80mm	0.45
Thermatek Assembly 20mm + 20mm	0.364
Thermatek Assembly 20mm + 40mm	0.139

\* Source: Panel test of solar heating of materials

Test Samples	Xps Assembly 75m+ 20mm	Thermatek Tile+ 20 mm Mortar	Thermatek Tile	Grey Cement Tile 20mm	Ambient
10:00 AM	37	32	39	40	32
12:00 PM	50	46	52	59	36
02:00 PM	54	51	55	64	40
04:00 PM	50	47	48	56	38
06:00 PM	43	41	38	43	37
08:00 PM	33	30	28	28	30



The graph represents an example of the sequence and performance (as a function of reduction in ambient temperature) of different materials subject to solar heating during a typical hot day.





Beyond Kilowatts - benefits of saving energy (25%-40%)

Minimally processed product with reduced non-renewable material use

Longer life cycle

Negligible environmental footprint

Reduced heat ingress and flux when the sun cooks the roof

Reduced smog from urban heat island effect - high SRI, high thermal resistance and thermal transmittance

Toward safe, healthy built environment

**Conforms to ECBC / LEED / IGBC Cool Roof requirements**

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