The Energy and Resources Institute
Creating Innovative Solutions for a Sustainable Future

mahindra LIFESPACES
Crafting Life

Mahindra TERI Centre of Excellence (MTCoE)

For Sustainable Habitats

NABL Accredited
Material Testing Lab

ilac-MRA
TC-8746

shot at location

GRIHA

SVA GRIHA 5-Star Rated Facility

★★★★★

Premier laboratory for

THERMAL PARAMETER TESTING

The Mahindra TERI Centre of Excellence (MTCoE) for Sustainable Habitat is a joint research initiative of Mahindra Lifespaces and TERI. It focuses on developing science-based solutions for India's future-built environment, intending to reduce the energy footprint of the real estate industry. The MTCoE lab, a SVA-GRIHA 5-star rated facility, has received accreditation for testing thermal properties of building materials from National Accreditation Board for Testing and Calibration Laboratories (NABL).

WHY MTCoE?

- Accredited Quality Systems: IS/ISO/IEC-17025:2017, ISO 9001 Certified
- Advanced equipments with excellent precision and accuracy
- NABL accredited lab
- Enhanced product credibility
- Well organized "state-of-the-art" facility
- Special consideration for Academic Institutions
- Platform to boost product outreach amongst stakeholders
- Supplementary benefits in bulk quantity testing

shot at location

OUR MATERIAL TESTING SERVICES

Thermal Conductivity (K-Value)	Thermal Diffusivity (α -Value)
Specific Heat Capacity (C)	Thermal Emittance (ε -Value)
Thermal Transmittance (U-Value)	Thermal Resistance (R-Value)
Solar Reflectance	Solar Reflectance Index (SRI), and more...

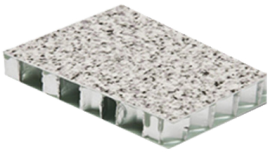
BRICKS & BLOCKS

POWDER

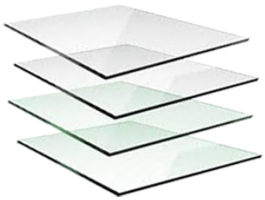
GELS

LIQUIIDS

MATERIAL ASSEMBLING



GLAZING & MORE..



Tested more than 200 vernacular, contemporary and innovative materials such as:

Light Weight Aggregate, Dampening Paint, Strawclay Brick, Afghanistan Traditional, Brick, Insulating Fabric, Low Carbon Plaster, Agrowaste Cube, Glass Tile and many more....

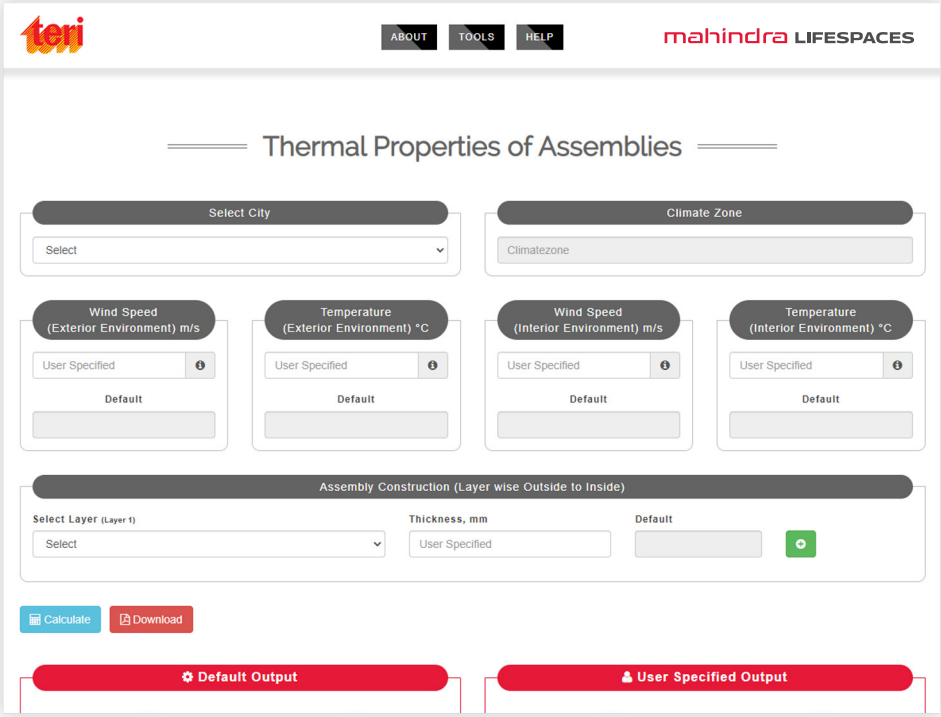
Material Database Tool:

Material properties of building assemblies (http://mahindratericoe-toolkit-matdatabase.com/)

VERNACULAR, CONTEMPORARY AND INNOVATIVE MATERIAL TESTING

Visit our website to check the material database tool & other toolkits:

https://mahindratericoe.com/toolkit



SOME INNOVATIVE MATERIALS TESTED AT THE LAB

INDI COW BRICK

Thermal Conductivity	0.25 W/Mk
Thermal Diffusivity	0.74 mm2/s
Specific Heat Capacity	0.3386 MJ/m3k
Density	539 Kg/m3

AGRO WASTE BOARD

Thermal Conductivity	0.256 W/Mk
Thermal Diffusivity	0.4185 mm2/s
Specific Heat Capacity	0.6118 MJ/m3k
Density	797.07 Kg/m3

VEDIC PLASTER

Thermal Conductivity	0.636 W/Mk
Thermal Diffusivity	0.72 mm2/s
Specific Heat Capacity	0.8866 MJ/m3k
Density	1300 Kg/m3

NODULLAR MIX1:1:4

Thermal Conductivity	0.372 W/Mk
Thermal Diffusivity	0.39 mm2/s
Specific Heat Capacity	0.9638 MJ/m3k
Density	1209.79 Kg/m3

RECYCLED GLASS TILE

Thermal Conductivity	0.85071 W/Mk
Thermal Diffusivity	0.43192 mm2/s
Specific Heat Capacity	1.9707 MJ/m3k
Density	2194.81 Kg/m3

COMPOSITE BRICK

Surki-28%, Clay-33%, Sand-28%, Cement-7%, Lime-4.5%

Thermal Conductivity	0.7983 W/Mk
Thermal Diffusivity	0.751114 mm2/s
Specific Heat Capacity	1.0653 MJ/m3k
Density	1580.77 Kg/m3

HOT DISK THERMAL CONSTANT ANALYSER

Thermal Constant Analyser rapidly and accurately measures the thermal conductivity, thermal diffusivity and specific heat capacity of a wide range of materials and encompasses high level of accuracy with material size flexibility.

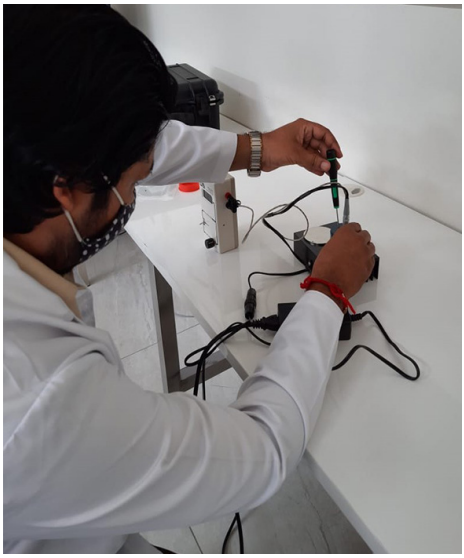
The material testing by Transient Plane Source technology is based on ISO:22007-2.

GUARDED HOT BOX

The Guarded Hot Box is used to measure the Thermal Transmittance (U-value) and Thermal Resistance (R-value) of building material assemblies by steady-state method as per ASTM C 1363.

EMISSOMETER

The existing Emissometer model AE1 with the Scaling Digital Voltmeter is a special purpose instrument for measuring hemispherical emittance in compliance with ASTM C1371. The instrument is applicable for both flat as well as non-flat surfaces for thermal emittance (E-value) measurements. For installed surfaces emittance can be measured in place.



SKY SCANNER

Sky Scanner is used to study the radiation contribution of the diffuse sky which is an important parameter for building automation, building design, daylight software modeling and light pollution research.

The sensor with two highly sensitive detectors, and viewing angle of 11 degrees captures the hemisphere in 145 sequential steps. Two-axis control of the sensor and precise tracking mechanism helps in achieving a high durability and repeatability.

Measurements are based on the CIE108-1994 recommendation (CIE - International Commission on Illumination, IDMP - International Daylight Measurement Program) and Standard Test Method ISO 9060:2018

The luminance values are measured per kcd/m2 and radiance value per W/m2/sr.

SOLAR MONITORING UNIT

The Solar Monitoring Unit consists of a pyranometer and a pyrheliometer on a sun-tracking mechanical system.

The Pyroheliometer measures the Direct Normal Irradiance (DNI) of the sun, whereas the Pyranometer measures the Diffuse Horizontal Irradiance (DHI) of the sky as per ISO 9060: 2018 standard test method.

Using these recorded parameters, an empirical model of sky brightness can be computed for the Indian sky.

SPECTROPHOTOMETER

The high-performance UV-Vis and NIR spectrophotometer with superb photometric performance in the 175–3300 nm range is used for the measurement of solar reflectance, transmission, Solar Reflective Index (SRI), etc. using the standards test methods ASTM E903, ASTM C1371, and ASTM E1980. The latest generation of PbSmart detectors has improved its sensitivity and lowered stray light in the NIR, making it a powerful tool for materials science research. Additionally, the instrument has the option of a 150 mm integrating sphere for diffuse reflectance and diffuse transmission measurements.

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Contact us

Mahindra TERI
Centre of Excellence (MTCoE)
For Sustainable Habitats

TERI Gram,
The Energy and Resources Institute,
Gwal Pahari, Gurugram - Faridabad Road,
Gurugram - 122 001, Haryana, India.

For enquiries
info@mahindratericoe.com
+91-8076309916 | +0124-2579320 Extn: 279