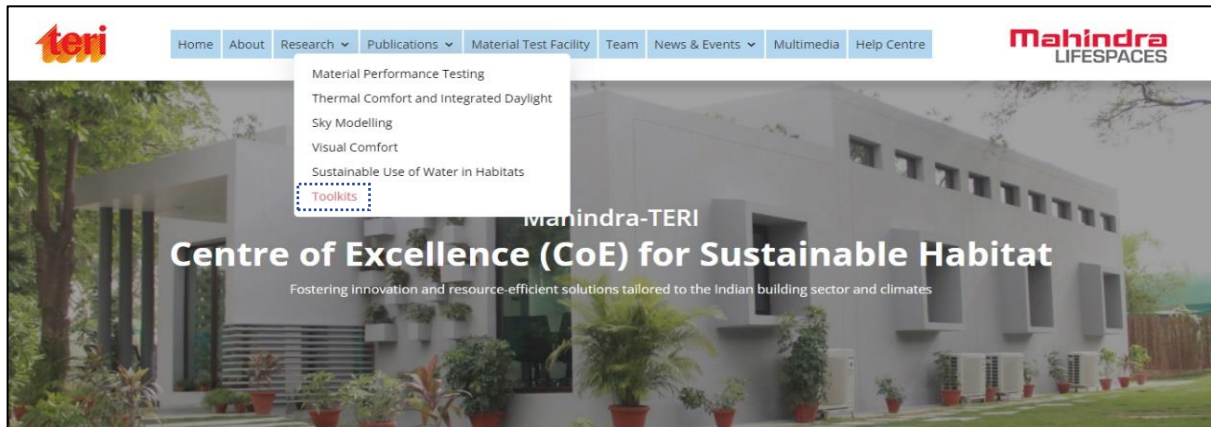


# User Guide for the "Thermal Properties of Building Materials" Tool

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Step 1: To use this tool, click on the URL <https://www.mahindratericoe.com/> and click on the "Research" tab and after that "Toolkits," as illustrated below.



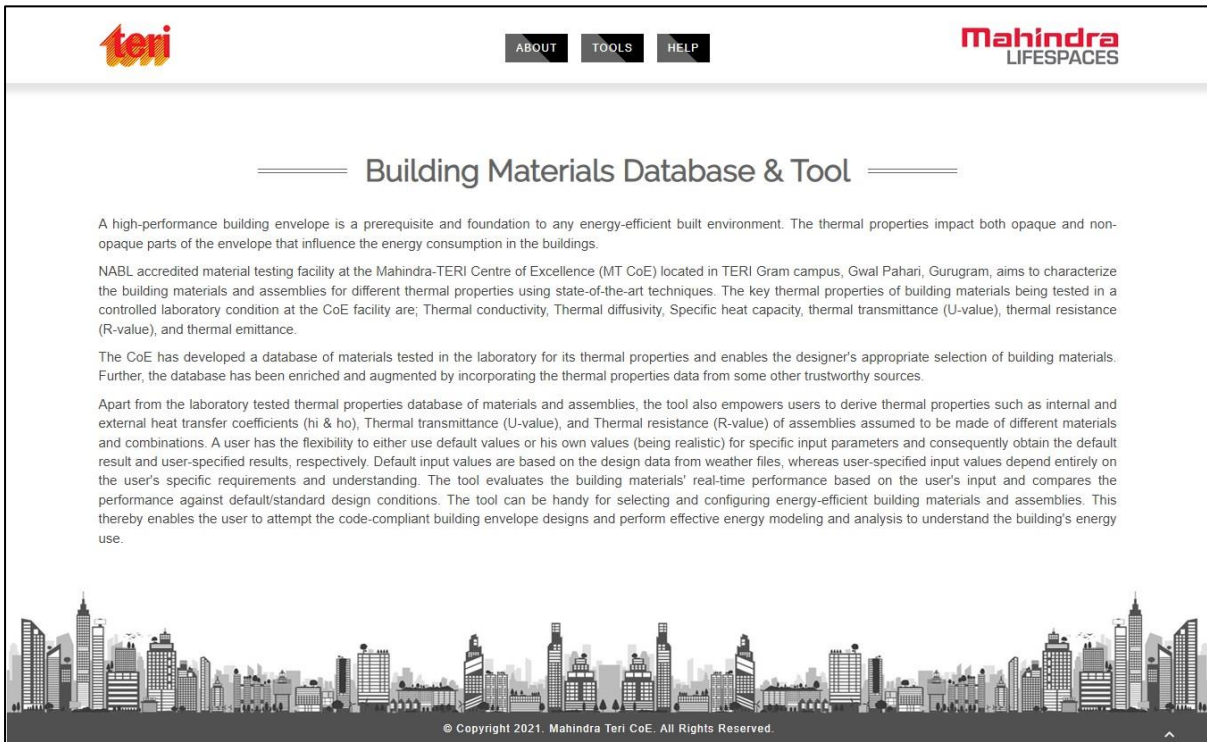
Step 2: Under the toolkits section, click on "Building Materials Database & Tool" as illustrated in the below figure;

The screenshot shows the website's navigation menu with options: Home, About, Research, Publications, Material Test Facility, Team, News & Events, Multimedia, and Help Centre. The main content area is titled "Toolkits" and contains several sections:

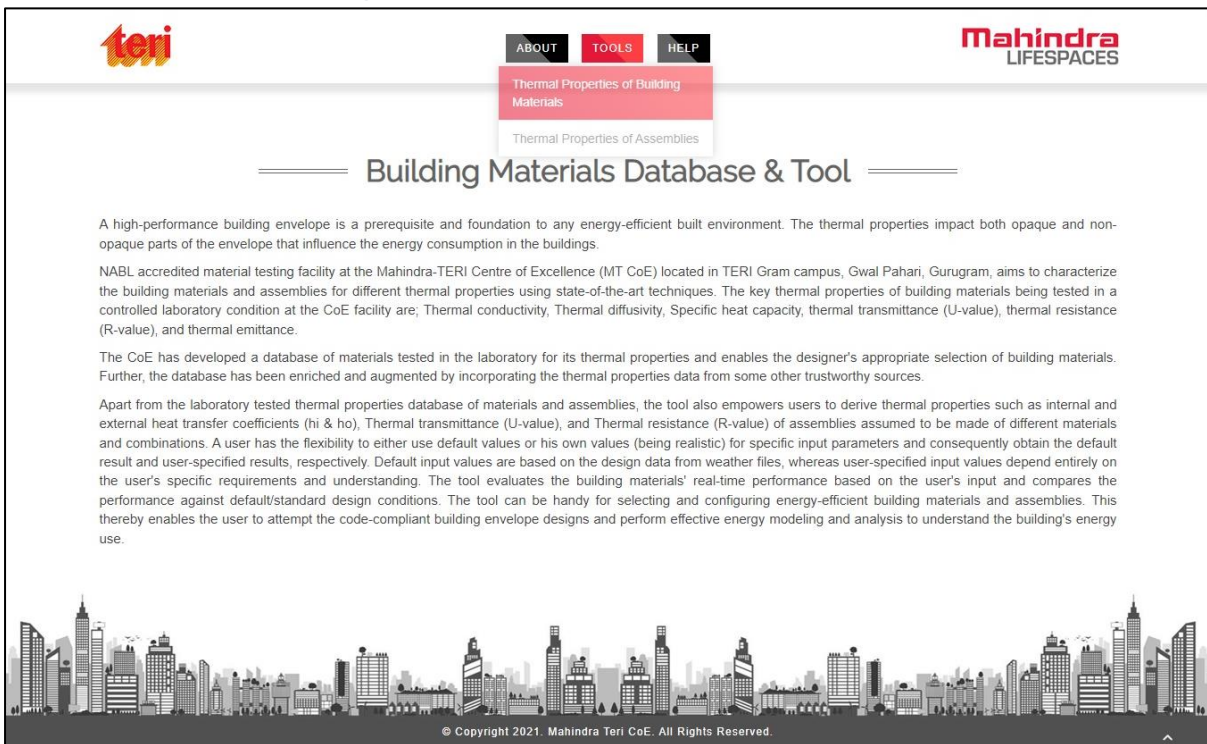
- Tools at MT CoE**
  - The WATER (Water Availability and Treatment for Efficient Reuse) Calculator**: A decision support tool for assessing water efficiency and savings in residential projects.
  - The Rainwater Harvesting Calculator**: Helps estimate rainfall for reuse and groundwater recharge, and design storage tanks.
  - Eco-Niwas Samhita Design Aider**: A design-based tool for selecting sustainable materials to meet compliance with various benchmarks.
- Building Materials Database and Tool** (highlighted with a dashed box): A NABL accredited facility for testing thermal properties of building materials. It provides a database of materials and assemblies, and a tool for deriving thermal properties based on user-defined or default parameters.

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and after that, the user will be redirected to the tool's home page, as shown in the below figure.



Step 3: Click on the "TOOLS" tab and after that on "Thermal Properties of Building Materials," as illustrated in the below figure.



Step 4: Select the category of the building materials as illustrated below.

The screenshot shows the Mahindra Teri website interface. At the top left is the 'teri' logo, and at the top right is the 'Mahindra LIFESPACES' logo. In the center, there are three navigation buttons: 'ABOUT', 'TOOLS', and 'HELP'. Below these is a section titled 'Thermal Properties of Building Materials'. A dropdown menu is open, showing a list of categories. The 'Bricks and Blocks' category is highlighted in blue. The categories listed are: Select Category, Fenestration - Glass, Insulation Products, Bricks and Blocks, Paints, Aggregates, Cement and Allied Products, Tiles, Natural Stones, and Others. At the bottom of the page, there is a city skyline graphic and a copyright notice: '© Copyright 2021, Mahindra Teri CoE. All Rights Reserved.'

Step 5: After selecting the building materials category, the corresponding materials will be displayed under the Material section. The user can choose different materials and thermal properties for the comparison, as illustrated below.

The screenshot shows a web application interface for calculating thermal properties. At the top, there are logos for 'teri' and 'Mahindra LIFESPACES', along with navigation buttons for 'ABOUT', 'TOOLS', and 'HELP'. The main heading is 'Thermal Properties of Building Materials'. Below this, there is a 'Category' dropdown menu set to 'Bricks and Blocks'. Under the 'Material' section, five options are listed with checked checkboxes: 'Flyash Bricks 75mm', 'Handmade Bricks', 'Cement-mud Brick 75mm', 'Soil Brick 20mm', and 'Brick sample A 75mm'. The 'Thermal Properties' section has five options: 'Thermal Conductivity (W/m-K)', 'Thermal Diffusivity (mm²/s)', 'Specific Heat Capacity (MJ/m³K)', 'Thermal Transmittance (U value) W/m².K', and 'Thermal Resistance (R value) m².K/W'. The first three are checked, while the last two are unchecked. Below the selection area, there are three bullet points providing standards and equipment used for the calculations. A blue 'SUBMIT' button is located at the bottom left of the main content area. The footer features a city skyline illustration and the copyright notice: '© Copyright 2021, Mahindra Teri CoE. All Rights Reserved.'



Step 6: After clicking on Submit button a pop-up will appear; the user has to fill all the details and click on the Submit Button to get the comparison results as illustrated below. The user can download the result by clicking on the 'Download Spreadsheet' button.

ABOUT
TOOLS
HELP

## Thermal Properties of Building Materials

**Category**

Bricks and Blocks

**Material**

- Flyash Bricks 75mm
- Handmade Bricks
- Cement-mud Brick 75mm
- Soil Brick 20mm
- Brick sample A 75mm

**Thermal Properties**

- Thermal Conductivity (W/m-K)
- Thermal Diffusivity (mm<sup>2</sup>/s)
- Specific Heat Capacity (MJ/m<sup>2</sup>K)
- Thermal Transmittance (U value) W/m<sup>2</sup>.K
- Thermal Resistance (R value) m<sup>2</sup>.K/W

• The standard used to determine the Thermal conductivity, Specific heat capacity and Thermal diffusivity is ISO 22007-2:2008. The equipment used is Hot disk thermal constant analyser.  
 • The standard used to determine the Thermal transmittance is ASTM C 1363. The equipment used is Guarded hot box.  
 • Energy Conservation Building Code for Residential Buildings, Part-I: Building Envelope, Bureau of Energy Efficiency (BEE),2018.

SUBMIT
DOWNLOAD SPREADSHEET

S No.	Type of Material	Thermal Conductivity (W/m-K)	Thermal Diffusivity (mm <sup>2</sup> /s)	Specific Heat Capacity (MJ/m <sup>2</sup> K)
1	Flyash Bricks 75mm	0.990	0.550	1.830
2	Handmade Bricks	0.910	1.310	1.190
3	Cement-mud Brick 75mm	0.610	0.810	0.760
4	Soil Brick 20mm	0.600	0.660	0.920
5	Brick sample A 75mm	0.620	0.650	0.960

Showing 1 to 5 of 5 entries

Previous
1
Next

• To sort the data

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