

Researchers develop heat isolation device for smart buildings

TIMES NEWS NETWORK

In view of energy challenges for sustainable living of people globally, a team of researchers at Indian Institute of Technology (IIT), Indore has designed an all-organic and flexible electrochromic device, which works like an electronic curtain. The newly developed device allows the visible light to pass through it and blocks the heat (infrared radiation) from the sun, leading to easy temperature management.

The team led by Rajesh Kumar, associate professor of Physics, IIT Indore, developed the electrochromic device that insulates the two sides of the prototype so that lesser energy is required in maintaining the temperature, either by air-conditioning or heating. As almost 41% of energy consumption around the world is to maintain appropriate light and temperature conditions in buildings, the device can play a crucial role in the field of electrochromism and colour filters. It

can also be used in smart windows, flexible devices, automobile industry to modulate colour and heat with one's requirements.

HOW IT WORKS

When an electrical bias of 1V is applied, the device becomes transparent allowing the visible light to pass while but filtering out the heat from sunlight. This property of the device is used in lighting and thermally insulating feature of buildings. With the application of low voltage (as low as 1V), it allows the visible light to come in but shields the infrared radiations of sun making the house cool from the external environment and not compromising the visibility inside. The prototype has been built out of organic materials and hence, consumes diminutive energy.