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Research team invents new 'smart' window that diminishes heat without blocking views

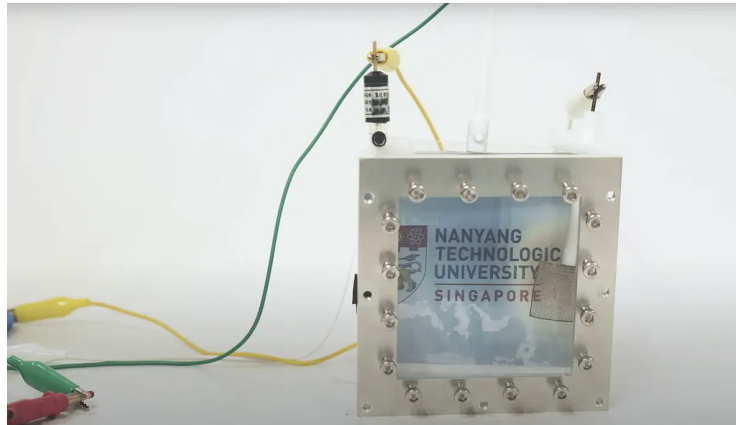


By [Nathaniel Bahadursingh](#)

Nov 10, '21 7:46 PM EST



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NTU Singapore's new electrochromic window technology. Image: NTUsg YouTube Channel

An international research team led by scientists from [Nanyang Technological University \(NTU\), Singapore](#) has invented a new [window](#) material that controls heat transmission without blocking views, which could help reduce the energy required to cool and heat buildings.

The new energy-saving material for electrochromic (EC) windows is designed to block infrared radiation, which is the primary component of sunlight that emits heat. According to NTU Singapore's announcement, the material could block up to 70 percent of infrared radiation, while allowing up to 90 percent of visible light to pass through. In addition, the researchers claim that it is about 30 percent more effective in regulating heat than commercially available electrochromic windows and is cheaper to make due to its durability. The material is intended to be coated onto glass window panels with users being able to switch on and off the infrared radiation transmission through the window.

Current electrochromic windows are only effective in blocking visible light, not the infrared radiation, so heat continues to pass through them. The researchers also note that another drawback of the current technology is its durability, as they tend to degrade within three to five years. NTU Singapore's electrochromic technology was reportedly put through "rigorous on-off cycles" in order to test its durability.

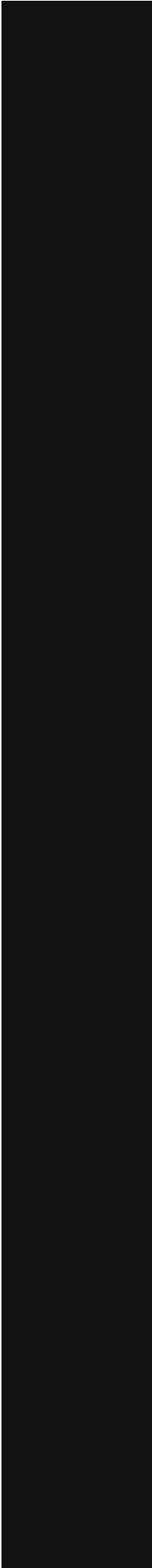
The research team says their advancement may help conserve energy that would be used for the heating and cooling of buildings and could contribute to the future design of sustainable green buildings.

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Additionally, to improve the performance of their smart window technology, the NTU team created a switch system that helps control conducted heat. When the switch is turned off, conducted heat cannot transfer through the window, and when it's switched on, the heat is allowed to pass through.

As per the press release: "When integrated with the newly developed electrochromic material, the team's smart window can control two types of heat transmission: infrared radiation and conduction heat, which is the main mode of heat transfer through matter."

The research team has partnered with innovative glass manufacturer iGlass Asia Pacific for further tests and to look at potentially incorporating the smart window into its projects for improved efficiency and sustainability.

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