

Examining the national energy savings potential of cellular shades

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Oak Ridge National Laboratory researchers demonstrated that window shades with a cellular or honeycomb structure provide higher energy savings during winter compared to generic venetian blinds and can save

millions of tons of carbon emissions.

Windows contribute to [energy demand](#) in [residential homes](#) because they let heat escape; coverings can improve insulation. In a study, researchers compared the performance of three single-cell and two cell-in-cell-construction cellular shades with that of generic horizontal venetian blinds. The shades were installed from December to March for two heating seasons over windows in adjacent, identical second-floor rooms in a home in the Southeast United States.

"The room with the cellular shades achieved up to 24% heating energy savings," ORNL's Mahabir Bhandari said. Additional energy simulations predicted how the shades would perform in different climate zones. "Nationally, [carbon emissions](#) could potentially be reduced up to 3 million tons assuming a 20% penetration rate of cellular shades in residential buildings."

The study is published in the journal *Building and Environment*.

More information: Niraj Kunwar et al, National energy savings potential of cellular shades: A measurement and simulation study, *Building and Environment* (2022). [DOI: 10.1016/j.buildenv.2022.109593](https://doi.org/10.1016/j.buildenv.2022.109593)

Provided by Oak Ridge National Laboratory

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