



# POWER EFFICIENCY PROJECT

Professor Max Powers' Power Efficiency Project (PEP) is brought to you by the Kansas Corporation Commission and Kansas State University Engineering Extension. Funding provided by a grant from the U.S. Department of Energy.



## Insulating your wallet with R-Values

Insulation determines how the environment interacts with us indoors. It helps us stay warm, keep cool, and it even muffles unwanted noises. But did you know insulation can help save money too?

When properly installed and maintained, insulation can help maintain desirable temperatures by keeping warm air in during the winter and preventing warm air from coming in during the summer! The higher the R-Value of a material, the better it is at insulating. But what is an R-Value?

An **R-Value** is “a measure of insulation’s ability to resist heat traveling through it<sup>1</sup>. In the U.S., materials such as fiberglass, cellulose, and foam (to name a few), have an assigned R-Value for comparison purposes. **Figure 1** shows these three types of insulation along with each one’s ability to block airflow. The orange ball hovering above each represents how much air is penetrating the insulation from beneath. The higher the ball, the more air is passing through, which in a real-world scenario results in heating and cooling losses. As you can see, some materials insulate better than others. The foam on the far right, for instance, with an R-Value rating of R-6, is insulating much better than the fiberglass on the far left, which has a rating of R-3.2. The cellulose offers a solid middle ground at R-3.4.

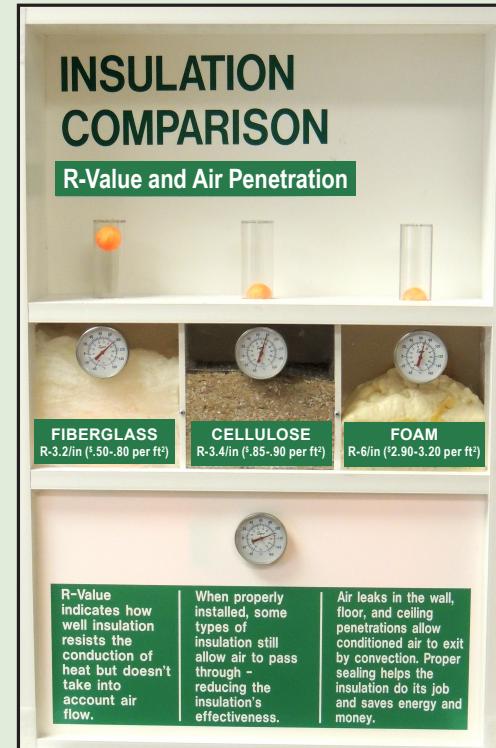
The next time you’re in the market for insulation, use R-Values to help determine the best choice for your needs. **Higher R-Value insulations may cost more upfront, but the potential to save on heating and cooling could ultimately save you money.**

1. Recommended Home Insulation R-Values, Energy Star, [https://www.energystar.gov/index.cfm?c=home\\_sealing.hm\\_improvement\\_insulation\\_table](https://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_insulation_table), June 2016.



**For more information on R-Values,**  
contact Kansas State University  
Engineering Extension at 785-532-4998  
or dcarter@ksu.edu.

Figure 1: Insulation comparison by Touchstone Energy Cooperatives.



## For more information

- Builder's Guide to Residential Foundation Insulation – <http://www.engext.ksu.edu/files/engext/publications/envelope/builderguide.pdf>
- Insulation Materials – <http://www.energy.gov/energysaver/insulation-materials>
- Types of Insulation – <http://www.energy.gov/energysaver/types-insulation>