

# Demystifying R-VALUES

The Arxx™ thermal performance story.

Traditionally, the thermal performance of a wall is measured by R-value. In the case of an Arxx wall, the R-value alone is an insufficient measure of performance.

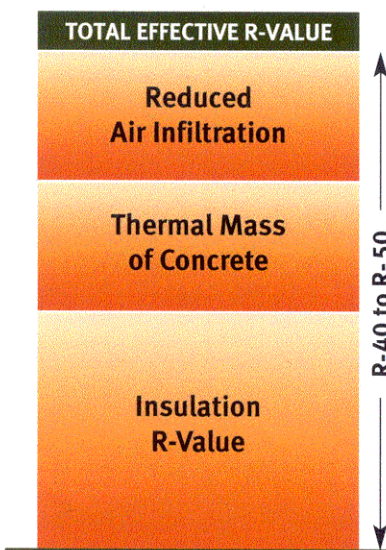
Why? Because R-value only takes into account the thermal resistance of the insulation and ignores other performance considerations. R-value is determined by performing a uniform calculation based on the thickness of the insulation. Thus, the more insulation, the higher the R-value.

This logic does not tell the true story of how your wall will perform. In the case of a stud wall, either wood or steel, R-value overestimates the effective thermal performance because it does not take into account the presence of the studs. In the case of an Arxx wall, R-value underestimates the effective thermal performance. The chart to the right details the stated vs. actual performance of four wall assemblies:

	R-VALUE	EFFECTIVE EQUIVALENT THERMAL PERFORMANCE
2 x 6 Wood Stud*	19	16
2 x 6 Steel Stud*	19	7
6-1/4" Arxx	22	40-50
8" Arxx	22	40-50

\*16" O/C; R-19 BATT INSULATION

To really understand how the Arxx wall performs, we must move beyond R-value. In the real world, Arxx works on three levels to maximize its thermal performance.



1. Arxx provides R-22 due to the thickness of the expanded polystyrene insulation. This is the traditional method of calculating **basic** thermal performance.  
*The **added** thermal performance of Arxx is derived from:*
2. The Arxx monolithic concrete core acts as a thermal mass to stabilize temperature swings within the building. As an example, when the temperature rises during the day, the concrete absorbs and stores heat. This heat is then released at night when the temperature drops. This moderating factor results in reduced energy requirements for your building.
3. The Arxx concrete core also acts to prevent air from blowing through the wall assembly. This dramatically reduces both air infiltration and exfiltration, again reducing energy demands.

It is the **combination** of these three factors that deliver the superior **EFFECTIVE THERMAL PERFORMANCE** of the Arxx wall.

A 1997 study performed by Construction Technology Laboratories in Skokie Illinois determined that in many cases, a wood framed wall would have to be insulated to the level of R-50 or greater to perform at an equivalent level to an insulated concrete wall. A full copy of this report, with regional extrapolations for 301 U.S. and Canadian cities, can be obtained by calling **Arxx at 1-800-293-3210**.

1.800.293.3210 | [www.arxxbuild.com](http://www.arxxbuild.com)

