

It's well known among building professionals that insulation material is not the only contributing factor to the energy performance of a building's wall assembly. The other components that make up the wall also have a thermal value that when combined with the insulation material can result in a wall having an R-value greater than the insulation itself. This is known as the "total R-value" of the wall assembly.

However, this only applies in cases where the insulation and accompanying components are layered continuously throughout the wall, and are constant in thickness, so that any section through the wall is identical (other than at openings). In these cases, the total R-value and the "effective" R-value are the same. LOGIX ICFs are a good example of this.

This paper discusses the total R-value of typical LOGIX wall assemblies, and makes an apples-to-apples comparison between those LOGIX wall assemblies, and similar wall assemblies built with other ICF systems.

TOTAL R-VALUE OF TYPICAL LOGIX WALL ASSEMBLIES

The LOGIX PRO and Platinum form panels have an R-value of R-23 and R-26, respectively. Because the form panels are continuous, along with the concrete core between the panels, any additional layer of continuous material (i.e., exterior cladding) adds to the effective, or

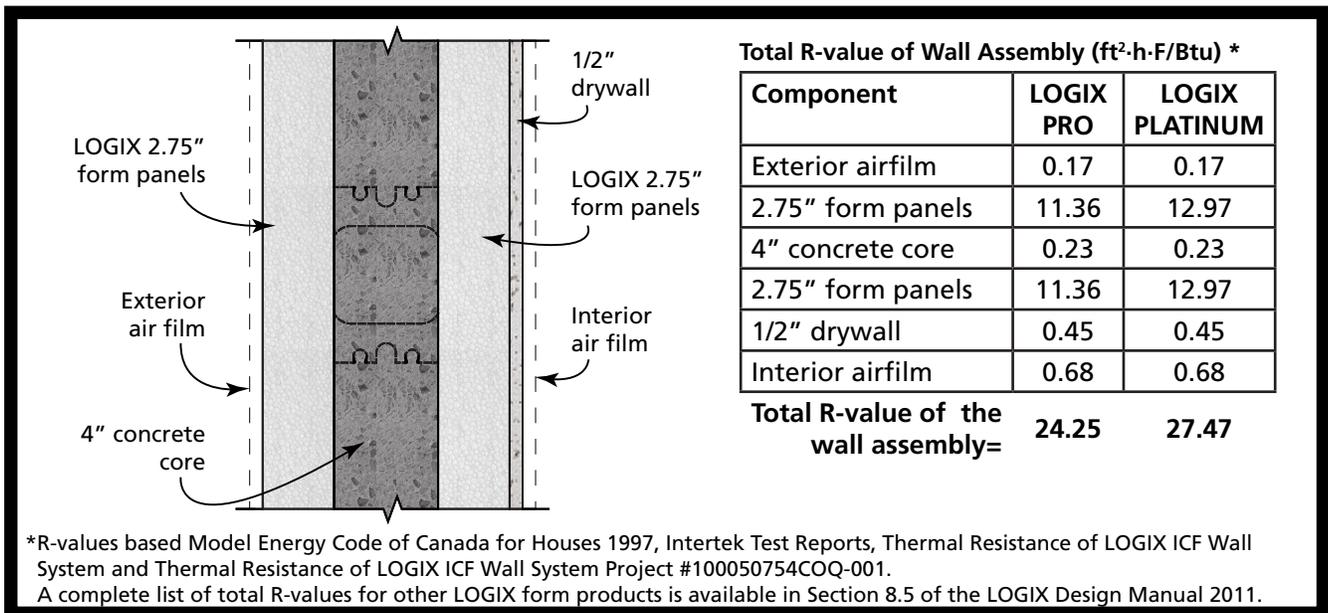


Figure 1. R-value of a LOGIX wall wall without exterior cladding.

total R-value of the wall assembly.

To illustrate, Figure 1 shows components of a typical LOGIX wall including the surrounding air film layers, concrete core and drywall. Each component contributes to the total R-value of the wall assembly. The total R-value will increase even more once exterior cladding is added¹.

From Figure 1, total R-value of LOGIX wall without exterior cladding:

LOGIX PRO: R-24.25

LOGIX PLATINUM: R-27.47

Total R-value of LOGIX with exterior cladding:

LOGIX PRO with stucco² = 24.25 + 0.13 = R-24.38

LOGIX PRO with hollow backed vinyl/steel siding² = 24.25 + 0.60 = R-24.85

LOGIX PRO with fiber cement siding² = 24.25 + 0.18 = R-24.43

LOGIX PLATINUM with stucco² = 27.47 + 0.13 = R-27.60

LOGIX PLATINUM with hollow backed vinyl/steel siding² = 27.47 + 0.60 = R-28.07

LOGIX PLATINUM with fiber cement siding² = 27.47 + 0.18 = R-27.65

TOTAL R-VALUE OF LOGIX vs OTHER ICF SYSTEMS

Studies³ show that LOGIX offers up to 26.8% more R-value when comparing LOGIX wall assemblies against the known total R-value of the same wall assemblies built with other ICF systems.

For more information contact your local LOGIX representative or e-mail info@logixicf.com.

1. The thickness of the concrete core will also have an effect on the total R-value. In this case, LOGIX minimum core thickness of 4 inches is used, which represents the minimum total R-value possible with LOGIX (increasing the core thickness will increase the total R-value).

2. R-values based Model Energy Code of Canada for Houses 1997

3. Based on test reports available from other ICF systems.