

Advantage ICF PIB 218

**EnerGuide for
Houses and the
R-2000 Standard**

Product Information Bulletin

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This bulletin provides an overview of how the Advantage ICF System can be used to meet the requirements of the **EnerGuide for Houses** program and the **R-2000 Standard** both developed by Natural Resources Canada (NRCAN). **EnerGuide for Houses** is a program for rating the energy efficiency performance of residential construction. The **R-2000 Standard** sets out house performance requirements that are in addition to those required by building codes.

The **EnerGuide for Houses** rating is an objective tool for assessing the energy performance of a home using a standardized measure. The home's energy efficiency level is rated on a scale from 0 which would represent a home with major air leakage, no insulation and extremely high energy consumption to 100 which represents a house that is airtight, well insulated, sufficiently ventilated and requires no purchased energy. The rating is based upon detailed information collected about the home's energy systems, construction materials and assembly which is then modeled with a software program developed by NRCAN. The table below provides general guidelines for EnerGuide ratings on different types of houses.

Type of House	EnerGuide for Houses Rating
Old house not upgraded	0 to 50
Upgraded old house	51 to 65
Energy-efficient upgraded old or typical new house	66 to 74
Energy-efficient new house	75 to 79
Highly energy-efficient new house	80 to 90
House that uses little or no purchased energy; an "Advanced House"	91 to 100

One of the basic requirements of the **R-2000 Standard** is that the home builder must have completed R-2000 builder training and must hold a current R-2000 builder licence. Key requirements from the **R-2000 Standard** that must be addressed for the building envelope are:

- Homes must operate within a specific energy budget, based on the characteristics of the home and the climate conditions where it's built. Additional insulation, double-glazed windows and high-efficiency heating systems are typical in R-2000 homes in order to achieve energy savings of 30 percent less than conventional wood-frame homes.

- Every R-2000 home must have a whole-house ventilation system that supplies fresh outdoor air to all living areas in the home.
- Builders must choose from a "pick list" of options for environmental features that include choices for insulation, siding, sheathing, wall studs and foundation drainage as well as other indoor air quality options.

Advanced Wall Systems

Traditional houses are built with vertical wall studs typically spaced about 400 mm (16 inches) apart. The Advantage ICF System is an advanced wall system used for both below grade and above grade wall construction. NRCan identifies to achieve compliance with the requirements for energy performance of the home and conservation of natural resources in the above NRCan programs.

The Advantage ICF System provides an R-Value exceeding *nominal* R-Values recommended for the R-2000 program based upon the *effective* R-Value as recommended by the Model National Energy Code for Houses (MNECH). For additional information on *effective* R-Value for the Advantage ICF System versus wood frame construction see Product Information Bulletin 214.

The *effective* R-Value of the Advantage ICF System is greater than typical wood-frame alternates because it does not use wood. Instead, the wall is constructed from insulating concrete forms that are filled with steel reinforcing and concrete. After the concrete is poured into the ICF, interior and exterior finishes are applied and the wall is complete. This Advantage ICF System offers several benefits including higher levels of energy efficiency, no settling or wall movement, lower air leakage characteristics and a lot less outside noise penetration than with wood-frame systems.