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Energy Performance of Wood Can't Stack Up to ICFs

Based on findings from the Reward commissioned study, completed by CTL Group, the R-Value achieved by an insulating concrete form (ICF) home cannot be realistically matched by a stick frame home.

CTL Group based their findings on modeling one structure-a two story house with 2,450 square feet of conditioned floor area. For the simulation, the house was analyzed in representative cities from 14 different climate zones. Cities ranged from north to south, Duluth, MN to Miami, FL and east to west, Baltimore, MD to Salem, OR. In each city the house was examined as if constructed from 9", 11", 13", 15" iForms and wood.

The study showed that the steady state R-Value (determined by only the materials used) was R-16 in the wood frame house and R-22 in an ICF home.

The dynamic R-Value equivalent (determined by the interaction of the wall materials with exterior conditions, air infiltration, etc.) proved to be 32 or higher in an ICF house.

To match this ICF energy performance, the wood frame house would need to have an R-Value of at least 125 in the colder climates and, in effect, some number over 1,000-the top of the R-Value scale-for the warmer climates.

The study shows that the energy performance of wood will never stack up to ICFs. A builder cannot realistically stuff the wood frame house with enough batt insulation to make up for the increased air infiltration and thermal mass found in an ICF house.

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