

64.7% State Average...

Evaluation of Building Code Compliance in Recently Built Homes

In 2011, the Nebraska Energy Office, with the assistance of a RESNET Certified Home Energy Rater, assessed energy code compliance of 100 homes built in 2010 in 18 counties across the state. The purpose of the assessment was to establish a code compliance baseline to assist efforts to move the state toward the goal of 90 percent compliance by 2017 as established in the American Recovery and Reinvestment Act of 2009.

Evaluation Results

Statewide

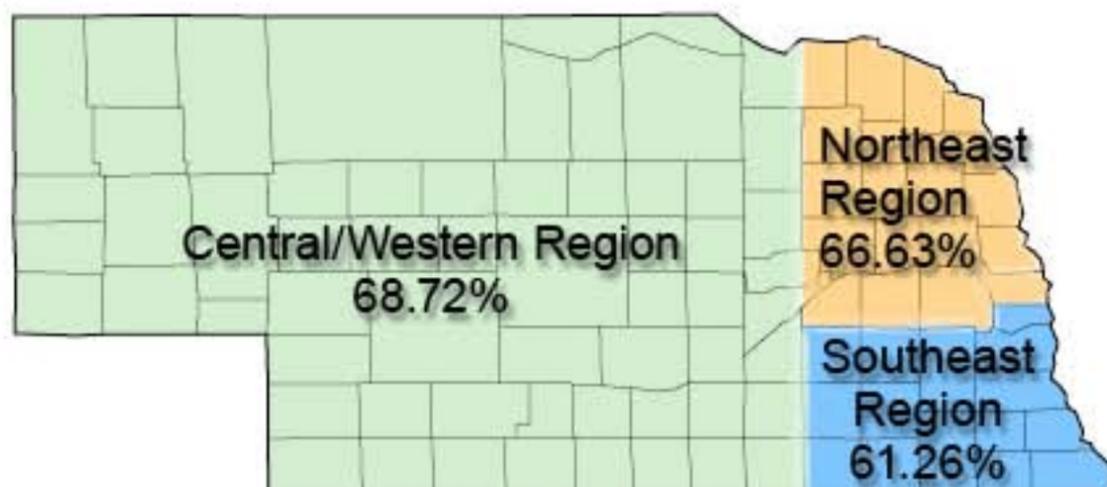
Homes built in 2010 that were evaluated for compliance with the 2003 IECC achieved an overall average compliance score of 64.7 percent. The highest rated home scored 83.67 percent and is located in a community in central Nebraska; the lowest rated home scored 42.55 percent and is located in a community in northeast Nebraska. Newly built homes that do not comply with energy codes can result in higher energy use throughout the life of the home than those built to code.

By Region

Northeast: 51 houses/8 counties evaluated; high score: 80.85 percent; low score: 42.55 percent; average score: 66.63 percent

Southeast: 39 houses/4 counties evaluated; high score: 69.39 percent; low score: 57.06 percent; average score: 61.26 percent

Central/Western: 10 houses/6 counties evaluated; high score: 83.67 percent; low score: 55.32 percent; average score: 68.72 percent



Nebraska evaluation regions and overall average compliance score.

The evaluation identified some areas where builders were generally consistent in complying with the energy code as well as specific areas that were consistently non-compliant and improvement is required to meet the established 90% goal.

Areas of Success

- Installing the doors and windows that meet minimum efficiency code requirements
- Sealing ductwork
- Installing the appropriate amount of insulation in floors and ceilings

Areas Needing Improvement

- Installing insulation according the manufacturers' specification and in sufficient thicknesses in all of the building envelope areas
- Caulking and sealing holes throughout the home's building envelope
- Specifying, documenting and installing appropriately sized heating/cooling equipment

Evaluation Particulars

The size of the evaluation (100 homes) was more than double what was needed for a statistically valid sampling. Where possible, efforts were made to:

- provide a geographic distribution within counties,
- sample a broad range of differently- priced homes,
- sample homes constructed by a variety of builders, and
- coordinate the number in the sample with the new home residential construction numbers reported in the 2010 Census data. Approximately 72 percent of homes built in Nebraska in 2010 were constructed in only three counties: Douglas, Sarpy and Lancaster.

Because the evaluation was completed on homes where the construction had been completed, the evaluation of specific construction requirements was based on what the inspector was able to view or verify based on his construction experience, or what had been documented with the local code jurisdiction or by a previously completed Home Energy Rating. The assignment of weighted values for specific construction elements was similar to that used by Pacific Northwest National Laboratory on their national code compliance evaluation used in ten states and in the Lab's Score and Store Evaluation Tool.