

2009 INTERNATIONAL ENERGY CONSERVATION CODE

OVERVIEW

In order to take advantage of certain energy stimulus money Governor Hineman had to stipulate that the State of Nebraska would consider the adoption of the 2009 International Energy Conservation Code (09 IECC). Such adoption is a legislative function so the Speaker of the Legislature also so had to sign on. There is no stipulated time frame for such action. However it is clear that at some time this will come to the legislature for consideration.

STATUS

- NSHBA needs to formulate a proposal in conjunction with the code officials to phase in the 09 IECC so the necessary capacity can be developed.
- NSHBA has successfully deferred action by pointing out to the Director of the Nebraska Energy Office that there are inadequate blower door testing resources available and just jumping to the 09 IECC code would work a hardship on the building community for code compliance.
- The Nebraska Energy Office has found that by going to the 09 IECC construction cost would go down and homeowners would realize a less than 3 year simple payback due to energy savings.

RECOMMENDATIONS

Awaiting recommendations from the NSHBA Codes Committee.

ISSUES BRIEFING

BACKGROUND-The International Energy Conservation Code is adopted by specific edition by the state legislature and is then administered by the State Energy Office and local code jurisdictions must enforce that specific edition or something stricter.

ENERGY IMPACTS-The Nebraska Energy Office hired Vandemusser Design to do an analysis of the energy impacts by going from the 03 IECC to the 09 IECC. The findings are based upon a 1,852 sf home with conditioned basement. Vandemusser Design found that ... “constructed in Omaha with 15% window to wall ratio and a conditioned basement, the total estimated increase in construction cost is \$476 if the 2009 IECC is adopted. The energy study showed that this same home could expect to experience \$164 in annual energy savings, providing a less than 3 year simple payback for the homeowner. In most other cities, and in Omaha homes with a window to wall ratio greater than 18%, the construction cost for the 2009 IECC is actually lower than the 2003 IECC.”

However, in the opinion of NSHBA there is insufficient capacity in trained and qualified people to conduct the blower door test on all new homes and this lack capacity needs to be addressed before jumping to the 09 IECC.

CHANGES IN THE 2009 IECC

Air Tightness Testing-Air infiltration can make or break a home's energy performance. For the first time, the 2009 code requires air leakage rates to be verified by one of two methods. Either you can get a point-by-point inspection during construction of a long checklist of air-sealing measures (similar in scope to the EPA Energy Star for Homes program's Thermal Bypass Checklist); or you can simply get a blower-door test at the end of the rough-in stage. For most builders, the blower-door test is the simpler process. Testing shall occur after rough in and after installation of penetrations of the building envelope for utilities, plumbing, electrical and ventilation and heating appliances. Air leakage must be less than seven (7) air changes per hour.

Insulation Levels-Required wall insulation R-values in Zone 5 (*Nebraska*) is R-20, achievable with a high-density fiberglass batt in a 2x6 wall. But there's a "13 plus 5" loophole for wall insulation in a 2x4 wall, that allows an R-13 high-density batt in a 2x4 wall plus structural insulated sheathing with a R-value of 5 (an inch of extruded polystyrene) even though on paper the total R-value of that system would only be R-18. While basic ceiling R-value requirements haven't changed, an exception has been added for cathedral ceilings (this exception is limited to just 500 square feet or 20 percent of total roof area, whichever is less). There's also an incentive for raised-heel trusses, or "energy trusses." If your truss has a raised heel where R-38 is required (*Nebraska*) for attic insulation, you can cut back to R-30, in recognition of the better performance achieved by insulation that covers the wall plate at full thickness.

Ductwork Testing-Duct sealing can make a big difference in home performance, particularly in cases where the ducts run in an attic or vented crawlspace. In the new code, all duct systems that extend outside the conditioned envelope have to be pressure-tested to verify acceptable leakage. (Ducts within a conditioned basement, conditioned attic, or interior building chase don't need to be tested, but they do have to be sealed and inspected.)

Programmable Thermostats-The 09 IECC requires programmable thermostats be installed for all homes having furnaces, but does not require them for homes with heat pumps.

Lighting Efficacy-The 09 IECC code has new and potentially confusing lighting requirements. At least 50 percent of the lamps in permanent fixtures must be high-efficiency (meaning a compact fluorescent bulb or something better). Because this rule is stated in terms of "lamps" meaning bulbs, not fixtures or wattage, a chandelier with incandescent bulbs would need to be offset by the same number of compact fluorescent bulbs elsewhere in the house. By the same token, an LED rope light with 100 tiny high performance bulbs, drawing less than one watt each, could theoretically outweigh 99 incandescent bulbs at 200 watts a piece. In practice, the Nebraska Energy Office and the local code official will have the final interpretation of this requirement.

The Software Option-With so many variables to balance, working from the prescriptive tables can be cumbersome. Some builders may prefer to use the software-driven "performance path," which has offered more flexibility. However, unlike in past versions of the code, using a high efficiency furnace or air conditioner won't let you get away with reduced wall, ceiling or basement insulation. The basic software tool for IECC compliance is DOE-2 (available for free

at doe2.com). Other packages that offer the same capabilities include EnergyGauge, REM/DeSign, and REM/Rate.

Home Labeling-For the first time, the code now requires documentation of every new home's energy-conservation characteristics. The builder must post a permanent certificate on or in the electrical distribution panel that specifies window U-values, wall and ceiling R-values, HVAC efficiencies, and other key building energy efficiency characteristics.

Mandatory HVAC Equipment Sizing-Requires heating & cooling equipment shall be sized based upon building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.