
BBS MEMO

Ohio Board of Building Standards

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Residential Energy Code Update

As part of the Board's normal cyclic update of the building, mechanical, and plumbing codes, and after holding a public hearing in November of 2006, the Board adopted the 2006 International Energy Conservation Code (IECC) by reference in Chapter 13 of the Ohio Building Code (OBC) with an effective date of July 1, 2007. Historically, the OBC energy conservation/efficiency chapter has always prescribed energy conservation requirements for both commercial and residential applications. This historic practice of locating residential energy code requirements within the commercial code has recently been questioned, especially given that the Board now has responsibility for the adoption of the Residential Code of Ohio, a responsibility previously held by local jurisdictions. In response to a request from the Ohio Home Builder's Association, the Residential Construction Advisory Committee made two recommendations at the BBS meeting on June 8th. Both recommendations were accepted unanimously by the BBS. The following is the result:

1. The BBS will allow the use of the 2003 IECC as an alternative compliance method for 1, 2, and 3 family dwellings for a six month period starting July 1, 2007 through December 31, 2007. Any designs submitted for approval on or after January 1, 2008 will not be permitted to use the 2003 IECC. The official legally adopted effective date of the 2006 IECC will remain unchanged as July 1, 2007. Practically, this means that for six months either the 2003 IECC or the 2006 IECC will be accepted by certified residential building departments. The design code of choice will have to be clearly identified in the construction document package submitted to the building department for approval.
2. The BBS will propose amended language to Chapters 11 and 43 of the Residential Code of Ohio to bring the text of the 2006 IRC into Chapter 11 and to change the reference in RCO Chapter 43 to reference the 2006 IECC. These proposed amendments will be heard at the November 2, 2007 Public Hearing conducted by the BBS.

As a reminder, there are three methods of demonstrating compliance with the IECC: the prescriptive method, the UA alternative method (sometimes called the trade-off method), and the simulated energy performance analysis method. The prescriptive path utilizes a published table of mandatory insulation R-values and fenestration values for the various building envelope components based upon climate zone. This method is the fastest and simplest, but most conservative and therefore, usually the most costly. The UA alternative, as compared to the prescriptive method, requires more time to complete the calculations, but allows the code user to calculate the total building thermal envelope UA (the sum of the proposed component U values times the component areas) which would have to be lower than the total UA resulting from using the U factors provided in a table. This allows for trade-offs in the building envelope insulation and fenestration values. The popular REScheck software is available for free to download from the US DOE website, www.energycodes.gov, and allows the user to perform the UA alternative calculation method. Finally, the simulated energy performance analysis methodology is the most flexible method, offering credits for favorable building orientation, low infiltration rates, shading, high efficiency mechanical equipment and lighting, and other renewable energy sources. The performance method utilizes one of many computer software packages that are available on the market for this purpose. These software packages typically require specialized knowledge and familiarization with its use.

A tip about the REScheck software as it applies to the UA alternative method of the 2006 IECC

Remember that if the prescriptive method is used, the values in Table 402.1.1 are absolutely mandatory. If, on the other hand, the Total UA alternative method is used as permitted in section 402.1.4, then the prescriptive values presented in Table 402.1.1 are presumed to be met as long as the calculations are performed as specified in section 402.1.4. Practically, this means that the prescriptive values are permitted to be modified, as long as the overall UA calculations are performed as specified in section 402.1.4. The U values specified in Table 402.1.3 supplement the UA alternative calculation method requirements of section 402.1.4. As previously mentioned, REScheck is probably the most popular tool for calculating the overall UA of the building. The REScheck software automatically accounts for the U-values from Table 402.1.3. When REScheck for the 2006 IECC does its initial UA calculation, it is only doing envelope UA calculations. Equipment efficiencies are not accounted for when doing an envelope UA calculation. If the building passes on REScheck's first envelope UA calculation, then section 402.1.4 has been strictly complied with and the building is considered in compliance with Table 402.1.1. However, if REScheck performs its envelope UA calculation and determines that the building fails, it will then perform another calculation which is more of a watered down performance type calculation described in section 404. This calculation differs from the UA envelope calculation because it is considering building orientation and equipment efficiencies. If the building passes upon this second REScheck calculation, then the building is "deemed to comply". This situation technically would be considered a compliance method somewhere between the UA alternative method and the performance method. REScheck is what we call a "deemed to comply" method that the BBS and most other states and jurisdictions accept. It doesn't strictly meet the code requirements when allowing orientation and equipment trade-offs, but we accept it anyway. Keep in mind that the REScheck report is just one option or method of showing compliance to the 2006 IECC. Therefore, building department personnel should not be requiring a REScheck report unless the owner or owner's representative states that they are using REScheck to demonstrate compliance.