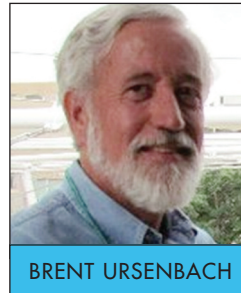


MECHANICAL CODE DISCUSSION

The Impact of the International Energy Conservation Code (IECC) on HVAC System Sizing



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The 'mature' among us remember the 1973 energy crisis, when Arab States



placed an embargo on oil. For the first time Americans were forced to consider habits and purchases as they attempted to reduce their energy consumption. Immediate challenges included long

lines at gas pumps, gas shortages, tripling gas price and the dramatic loss

in value for gas guzzling cars. As the Federal Government initiated mandates for improved fuel economy, The American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) responded in 1975, with

the development of the first national energy code; Standard 90-75 - Energy Conservation in Building Design. Energy Codes continually evolved over the next forty years, with a significant

increase in stringency over the past 9 years. As the thermal performance of buildings improves, HVAC system loads are reduced proportionally.

Consider the following results, calculated to illustrate the impact of Energy Codes on HVAC loads:

My wife and I purchased our first home early in 1975. A new two bedroom ranch/rambler with 1008 square feet, the home included single pane aluminum frame windows, R-11 wall insulation and R-13 attic insulation.

The winter heat loss for our home built in 1975 is listed in the following table:

The winter heat loss for this home as built in 1975:	43,870 BTU/hr.
Calculating the heat loss for the same home to the 1987 model energy code:	34,494 BTU/hr.
The same house with insulation and windows to the 1997 model energy code:	27,900 BTU/hr.
Again to the 2003 IECC code:	24,517 BTU/hr.
Next to the 2012 IECC as amended in Utah (A mix of 2006, 2009 and 2012 codes):	14,175 BTU/hr.
Finally to the 2012 IECC without the weakening Utah amendments:	11,198 BTU/hr.

For obvious reasons, HVAC contractors must discard rules of thumb used to size HVAC systems. It's critical to become familiar with the thermal performance specifications for each

home, using accurate specifications to calculate accurate loads. As HVAC system design is directly impacted by the IECC, HVAC professional must become familiar with IECC. Over the

next few Pipeline issues, we'll explore the specific requirements in the residential IECC. ■

*Thank you for your continued support—
Brent*