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FROM: Chris Van Rite, Sales Manager, M&M Manufacturing Company

REGARDING: Changes Relating to January 23, 2006 NAECA update

What is NAECA?

The National Appliance Energy Conservation Act (NAECA) of 1987 established among other things minimum Seasonal Energy Efficiency Rating (SEER) for A/C equipment. The minimum SEER required by NAECA since 1992 has been 10 SEER.
On January 23rd, 2006 the NAECA minimum SEER increased to 13 SEER.
This act applies only to the manufacture of equipment and does not restrict the sale of equipment made prior to dates of change. A/C equipment manufactured prior to January 23rd, 2006 can be legally sold and installed as long as supplies last.

Note: Always check local city codes for locally adopted minimum standards.

Do the NAECA changes affect Texas Building Codes?

The simple answer is yes. The controversy and much of recent debate is over the question of whether updates in a federal standard supersede or preempt codes adopted by our Texas state legislature. Rather than get bogged down in a debate over states rights, it seems more productive to accept the fact that there is a new, higher national standard, that will likely be adopted by our next Texas Legislature, so we might as well incorporate the new standard in our building practice ASAP. In the mean time the Department of Energy (DOE) is taking the position that their rulings do preempt state adopted codes and took affect on January 23, 2006.

The following link is the latest information (as of 12-20-05) from DOE.
http://www.energycodes.gov/residential_ac_hp.stm

With all of this in mind, The Energy Systems Laboratory (ESL) at Texas A&M University is recommending that the “Safe” route is to assume a **13 SEER minimum baseline as applied to the 2000 / 2001 International Codes starting January 23rd, 2006.**

What is a Trade-off and why do we need them ?

According to the January 20, 2005 publication by the DOE, the 2000 / 2001 International Energy Conservation Code (IECC) now requires a minimum of 13 SEER A/C Equipment. 2001 IECC also requires R-8 insulation on supply ducts and R-4 insulation on return ducts (R-8, R-4). Using R-6 on supply and return ducts (R-6, R-6) is slightly less efficient.

Since the IECC is a performance based code, you can "trade-off" lesser efficient components in one part of the house for higher efficient components in other parts of the house so long as the prescribed minimum efficiency is maintained.

The home building industry in Texas very much prefers using R-6 duct insulation throughout the house and requested that ESL investigate code compliance alternative methods using (R-6, R-6) duct insulation. These code compliant alternatives are referred to as Trade-Offs.

Note: ESL can only recognize a trade-off as meeting or exceeding prescribed codes. It is up to the discretion of local code officials whether or not to allow trade-offs.

2000 International Residential Code (IRC)

Texas also adopted the 2000 International Residential Code, which can be used for houses with 15% or less glazing (window to wall ratio). The 2000 IRC only requires R-5 duct insulation, so homes built to this code do not require trade-offs to allow the use of (R-6, R-6) duct insulation.

It should also be noted that since 10 SEER and 12 SEER equipment can be legally sold after 1/23/06, the IRC is a good option for using less than 13 SEER equipment with R-6 duct insulation.

Check with local code officials to confirm that 2000 IRC is compliant or allowed.

How will Cities enforce the new standards?

Many Texas cities have already announced their intentions to follow the ESL recommended options for compliance using the new 13 SEER baseline performance as applied to the 2000 / 2001 IECC. Some cities may deal with these changes differently and at different times.

Again, most cities will apply the old standards to houses permitted prior to 1/23/06. Hopefully local officials will act as they did in 2002 / 2003 by allowing current standards to overlap with new standards for a reasonable amount of time.

If local officials do allow a continuation of old standards and trade-offs for some period of time beyond 1/23/06, contractors and builders should know that they could be exposing themselves to possible legal action if the home is later determined to have not been built to the federal standards which took affect on 1/23/06.

R-6 in '06
A Summary of new requirements for using R-6 Duct Insulation after January 23rd, 2006

By Chris Van Rite

Warning: The information below represents the basic options available. Each of these options has qualifications not listed here. Always check with local code officials.

1. **Pull permits prior to January 23rd.**
   Houses permitted prior to 1/23/06 can be built using the old standards and trade-offs.

2. **14 SEER / R-6 Trade-Off**
   With the new base line of 13 SEER, R-6 Duct insulation can be compliant by increasing the equipment to 14 SEER.
   Note: For climate zones with less than 3,000 Heating Degree Days (HDD) This includes Dallas / Fort Worth and zones to the South.

3. **Energy Star**
   Energy Star homes which meet the required efficiency using 13 SEER baseline performance can be compliant with R-6 Duct Insulation.
   Note: Energy Star homes permitted after July 1, 2006 may require 14 SEER / R-6. Check for updates from the Department of Energy (DOE) regarding Energy Star compliance after 1/23/06.

4. **13 SEER / R-6 / Improved Windows Trade-Off**
   Homes can be compliant using 13 SEER / R-6 by increasing the efficiency of windows above 2001 IECC requirements per climate zone
   (See ESL 12-28-05 letter for window specifications)

5. **13 SEER / 2001 IECC Chapter 4 Systems Analysis**
   A 2001 IECC chapter 4 analysis, which demonstrates compliance using 13 SEER baseline performance will be compliant after 1/23/06.

6. **13 SEER / R-6 / 2000 IRC, Chapter 11**
   The 2000 International Residential Code (IRC) can be applicable if the home has 15% or less glazing (window to wall ratio). The 2000 IRC specifies R-5 minimum Duct Insulation.
   Note: After 1/23/06, 10 SEER and 12 SEER equipment manufactured prior to 1/23/06 can be installed with R-5 Duct Insulation in homes built to the 2000 IRC.

Other Proposed Trade-offs

In addition to the compliant measures and trade-offs posted on the web site, ESL is evaluating the following trade-offs. There is no schedule for approval date, but we may see approval of these trade-offs in some form in the future.

1. **SEER 13 / R-6, R-6 (with 5% or Less Duct Leakage)**
   If the duct system can be demonstrated to perform with 5% or less duct leakage, as opposed to 10% or less duct leakage as prescribed by IECC, this **may** constitute increased efficiency sufficient to allow R-6, R-6 ducts with 13 SEER equipment.

2. **SEER 13 / R-6, R-6 (with Radiant Barrier)**
   It is possible that radiant barriers **may** constitute increased efficiency sufficient to allow R-6, R-6 ducts with 13 SEER equipment.

3. **SEER 13/ R-6, R-6 (with 15 % Improved Performance in REScheck)**
   It is possible that a REScheck performance analysis showing 15% above code **may** constitute increased efficiency sufficient to allow R-6, R-6 ducts with 13 SEER equipment, however ESL will have to conduct a thorough review of how REScheck calculates efficiency before they can make that determination. ESL has requested information on the efficiency calculating methods of REScheck from DOE.

Thank you, ESL

It should be noted that the Energy Systems Laboratory (ESL) at Texas A&M University has gone out of their way to accommodate our Texas home building industry. Most of the issues we have been dealing with are related to the wonderful R-6 trade-offs that ESL has determined to meet or exceed code. It would have been much easier for ESL to just recommend the application of the codes as written in which case we would be dealing not only with an increased SEER, but also R-8 duct insulation and all the variables that come with it.

The above comments and opinions are intended for information only. For official information please refer to the ESL web site.

Please feel free to contact me for information or comment.

Thank you,

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Reference Links

Energy Systems Laboratory at Texas A&M University
http://energysystems.tamu.edu/
Click on the Senate Bill 5 link for related changes and updates.

Department of Energy publication
State Energy Code Criteria for Residential AC and HP
Preempted January 23, 2006"
http://www.energycodes.gov/residential_ac_hp.stm

M&M Manufacturing Company web site
http://www.mmmfg.com
Slide curser over "Services and Capabilities" (top right of home page), then click on "PDF Downloads".
This document and related updates will be posted periodically.