The 2006 International Energy Conservation Code

Residential

IECC Residential Provisions

- **What Complies?**
  - **One- and two-family dwellings**
  - **Townhomes**
  - **Other residential buildings three stories or less**

IECC – Austin's Version

- **Austin is still under the 2000 IECC with the 2001 updates and local amendments.**

- **Major local amendments to 2000 IECC:**
  - **No vapor barrier in walls**
  - **No electric resistance space heating (primary)**
  - **No electric resistance water heating (primary)**

IECC – What's changed for 2006?

- The code became more user friendly – prescriptive path is easy to follow, options for performance path including UA
- While it improved energy efficiency for heating climates, it results in a very small increase or a *reduction* in energy efficiency for cooling climates
- In other words, there is a bias towards heating dominated climates

2006 IECC Prescriptive Requirements – Major Changes

- Air barrier at the thermal envelope
- R-8 insulation on ducts outside the thermal envelope
- Window/wall ratio removed for nation, but retained for Texas to meet state energy efficiency requirements

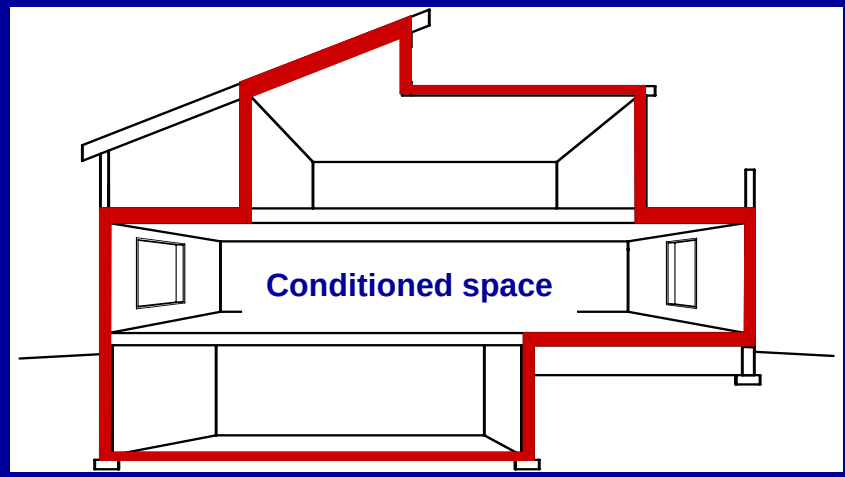
2006 IECC – Performance Path

- Provides for tradeoffs in shell components – UA method

- Credit for additional design features
  - Infiltration reduction
  - Shading and orientation
  - Passive/active solar design
  - On-site power production -- PV supplied power
  - High efficiency mechanical equipment

2006 IECC - Requirement

- **Air barrier at thermal envelope**



Exterior walls behind tubs, showers, fireplaces need attention. Watch for porches, dormers, kick-outs.

2006 IECC - Requirement

- **R-8 insulation on ducts outside of conditioned space**
- **R-6 insulation on ducts through floor trusses.**

Exception: none required on ducts within conditioned space

Ducts compressed into small space

Proposed Local Amendments

- An Austin Energy working group recommended several local amendments to the IECC
- These amendments then went to the Net Zero Energy Capable Task Force, which developed a couple more

Proposed Local Amendment

- **Roof radiant barrier required**
  - Emittance of .05 or better
  - Installed shiny side facing inward

- **Exceptions:**
  - Reflective roofing
  - Sealed attic or insulation at roof
  - Mechanical, ducts in conditioned space

Proposed Local Amendment

- 25% of indoor lamps must be Energy Star-compliant high efficacy
  - Lamps in closets are to be excluded from the 25% calculation.

- Outdoor luminaires permanently attached to a structure must be high efficacy or controlled by an integral photocell.

Proposed Local Amendment

- **Still a prohibition on primary electric resistance for DHW, but:**
  - **if natural gas is not available, then heater must be high efficiency and controlled by pre-programmed timer**

Electric resistance still allowed as secondary to solar or other primary heat

Proposed Local Amendment

- **Documentation of Manual J load calculations**
  - **Must be accurate**
  - **Use proper design temperatures**

System capacity should closely match load calcs – no fudging up or oversizing

Proposed Local Amendment

- **Envelope testing (blower door) .5 or fewer air changes per hour (ACH)**

Mechanical ventilation should be considered for houses under .3 ACH

Proposed Local Amendment

- **Duct testing (duct blaster) – leakage of 10% or less.**

Write this requirement into your mechanical contract

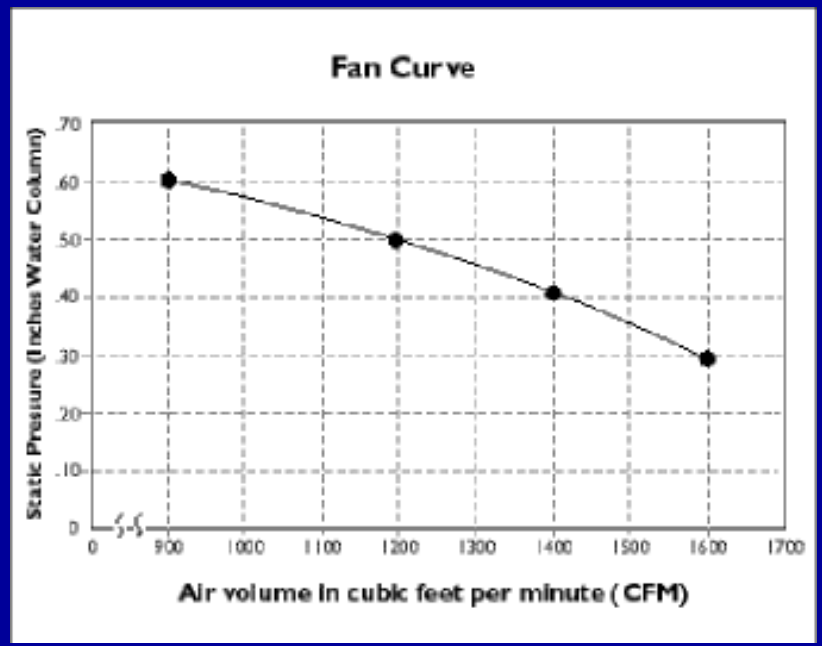
Proposed Local Amendment

- **Balancing system airflow delivery to within 15 CFM of design**

Bad duct layout or installation and restrictive supply registers can make balancing difficult.

Proposed Local Amendment

- HVAC system static pressures - ≤ .8” WC for gas furnaces, .6” WC for heat pumps



If static pressures are too high, the fan can’t deliver design CFM efficiently – or at all!

Proposed Local Amendment

- **Minimum MERV rating of 6 for ventilation system filters**

Clean coils allow systems to deliver rated performance and last longer

Proposed Local Amendment

- **Question:** **Where are these HVAC-related amendments taking us?**

- **Answer:** **Commissioning of HVAC systems so that a 2 ton, 14 SEER system will deliver 2 tons of cooling at 14 SEER efficiency!**

Down the road . . .

- **Once the 2006 IECC with local amendments is adopted, the Residential Green Building Program will adjust its rating accordingly.**

- **In the future the ZECH Task Force will be looking at amendments to further reduce energy consumption.**