HVAC Installed Performance

ESI, Tim Hanes

Context

- The building envelope has historically been the focus in residential homes.
- The largest consumer of energy in residential homes is typically the HVAC system.
- Testing the performance of the HVAC system has not been pursued to its full potential.

Technical Approach

- Currently very little performance testing is being done to the HVAC system.
- The only way to know if a HVAC system is operating correctly is to measure the Btu/h.
- This should be done at the equipment and at the the system.

Recommended Guidance

- Training of HVAC technicians, installers, and salespeople is a must.
- If only the technician is trained than implementing the change will not happen.
- Public awareness of proper installation and its value is a must.
- Promote participation in Energy Star, ACCA QI, SAVE, and other programs focusing on HVAC installation.

Value

- HVAC Contractors will improve customer satisfaction if the system is installed correctly.
- Contractors will also increase sales opportunities if this approach is implemented.
- Homeowners may see the price of the installation increase but the value of the end product exceeds the increase in cost.
- A typical measured performance at the equipment is 70% of its rated Btu/h capacity, the system is 60%.

Market Readiness

- Energy Star participation in Iowa is still strong.
- SAVE program in Iowa 1274 homes enrolled and 1148 completed.
- Utility rebate and participation can help drive the market.

Pros and Cons

- A proper installation has many positive benefits; safety, operating cost, equipment life, …
- Unfortunately proper installation can be more expensive. The increased cost is greater on the retrofit side compared to new construction.

References

- Energy Star New Homes in Iowa.
- MEEA SAVE program
- NCI performance testing contractor data.