

# Home InSight

Sherlock Homes

*Solving the Case of  
the Mysterious Home Condition*



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## HERS RATINGS

Home InSight does HERS (home energy rating system) Ratings for a variety of energy related programs, including EarthCraft House and ENERGY STAR. These same skills and tools used to create what the Department of Human and Urban Development (HUD) are calling a HERS Report. They can be used to model houses based on plans as well as existing houses of any age.

**Existing House Process.** To model an existing home, measurements are made of the exterior, including the foundation, walls, and windows. Data is collected on heating and cooling equipment and water heaters. Notes are taken about the locations of specific components around the house, such as the ductwork. To complete the model, the rate air leakage through the walls, windows, and doors as well as the ductwork need to be determined. This is done with diagnostic testing using a Blower Door and Ductblaster.

**Modeling.** After all the data is collected, the information is put into a HERS model. The result is a HERS Index. Theoretically, a house built today to the building code has a HERS Index of

100. (In practice, there more like 120). As a house gets more energy efficient, including using on-site power generation such as from solar panels or wind, the Index goes done. A house with an Index of 0 is creating as much energy as it is losing or using.

**What-if Games.** Once the model of the existing house is complete, what-if games (sensitivity analysis) can be played with it to determine what can be done to save



energy. Some actions cost more than others. Air sealing and insulating an attic usually costs much less than replacing windows--and it has a far greater impact. Working on the attic and air sealing ductwork are almost always the first and second item on the list of recommendations.

**Prioritizing Work.** In practice, rather than playing what-if games, Home InSight uses a Scorecard from the Home Performance w/ ENERGY STAR program. The Scorecard prioritizes work based on the greatest reduction of energy for the least amount of money. Several items are rated Priority A-D or marked okay. This scorecard can then be used, to figure out what the energy saving would be as each item is accomplished. The tricky part is figuring out the dollar cost of each of these items. For that, you have access to my entire network of Home Performance Contactors. They are professionals who implement my recommendations every day.

**New House Construction Process.** The process for modeling a house being built is similar to the existing process. The measurements and fenestration (windows and doors) schedule are provided in the building plans. The program the builder is using to build the house dictates what the worst-case building and ductwork air leakage is to be. For example ENERGY STAR expects duct leakage to outside of less than 6%. The house is then modeled to get a HERS Index based on plans. What-if games can be played to help the builder make decisions.

After the house is built, Blower Door and Duct Blaster tests are taken to determine how leaky the house and ducts are. The house is also compared to the plans. Any changes to the house are updated in the model. The final result is a HERS Index. The certificate is sent along with other documents to certify a house in a program, such as EarthCraft House, ENERGY STAR, and Building America Challenge: sometimes all three!

**HERS Report.** People applying for Energy Efficiency Mortgages (EEMs) or Energy Improvement Mortgages (EIMS) need a HERS Rating. HUD calls it a HERS Report. It is a rating on an existing house with recommendations for improvement. The applicants then use the recommendations to get quotes for the work. The mortgage lenders then roll the cost of the HERS Rating and improvements into the loan. The objective is to use the money saved in energy costs for slightly higher mortgage payments. Whatever is left over can be used however the home owner likes.

For more information on [Energy Efficiency Mortgages](#), visit HUD's website.