



Insulation and Air Sealing

Typical insulation isn't usually enough to regulate home temperatures effectively. High-performance insulation in walls, floors and attics helps decrease energy use and make your home more comfortable year-round.

Sealing and insulating the "envelope" or "shell" of your home — its outer walls, ceiling, windows, doors, and floors — is often the most cost effective way to improve energy efficiency and comfort. ENERGY STAR estimates that you can save up to 20% on heating and cooling costs (or up to 10% on their total annual energy bill) by sealing and insulating.

Many air leaks and drafts are easy to find because they are easy to feel — like those around windows and doors. But holes hidden in attics, basements, and crawlspaces are usually bigger problems. Sealing these leaks with caulk, spray foam, or weather stripping will have a great impact on improving your comfort and reducing utility bills. Knowledgeable insulation contractors will use special diagnostic tools to pinpoint and seal the hidden air leaks in your home. They will also check to make sure that your combustion appliances (gas- or oil-fired furnace, water heater, and dryer) are venting properly.

Insulation keeps your home warm in the winter and cool in the summer. Insulation works best when air is not moving through or around it. So it is very important to seal air leaks before installing insulation to ensure that you get the best performance from the insulation. There are several common types of insulation — fiberglass (in both batt and blown forms), cellulose, rigid foam board, and spray foam. Reflective insulation (or radiant barrier) is another insulating product which can further reduce energy use. When correctly installed with air sealing, each type of insulation can deliver comfort and lower energy bills during the hottest and coldest times of the year.

Insulation performance is measured by R-value — its ability to resist heat flow. Higher R-values mean more insulating power. Different R-values are recommended for walls, attics, basements and crawlspaces, depending on your area of the country.

To get the biggest savings, the easiest place to add insulation is usually in the attic. If your insulation is level with or below the attic floor joists, you probably need to add more insulation. The recommended insulation level for most attics is R-38 (or about 12–15 inches, depending on the insulation type).



Contest Home Example

The contest winning home was very drafty and was tested using pressure diagnostic equipment at 3557cfm50. After dense packing the walls we tested again at 2665cfm50. After installing foam over the family room ceiling we tested at 2050cfm50 and finally after more caulking and completing the attic insulation, the house tested out at 1781cfm50, a 50% reduction in air leakage.

Building Envelope:

The family room is the most used room and most uncomfortable room in the house. It was always warmer in the summer and colder in the winter. The ceiling construction was open beam with tongue and groove which added to the air infiltration. Air Secure Insulation & Acoustical removed the existing batt insulation and added foam insulation to both insulate and air seal the ceiling. Spray foam insulation is the best choice for sealing leaky areas in the building envelope. Also, the installation team covered and sealed all chases that connect the attic to the house.



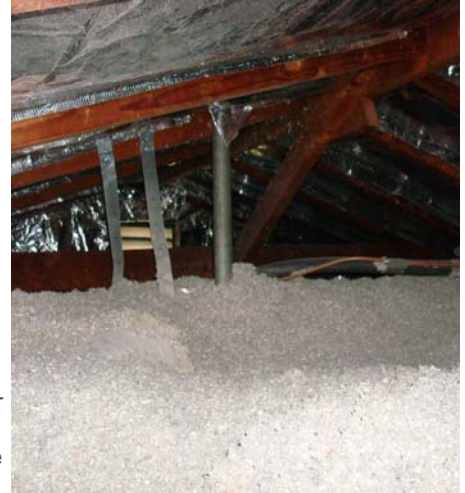
For the rest of the attic, Eagle Shield sprayed-in cellulose insulation to bring the insulation level from R-6 to R-38. Cellulose insulation is made out of recycled paper that has been treated for fire protection. Cellulose is a good choice for a "Green" product. A radiant barrier was stapled to the roof rafters. The barrier is foil with high aluminum content. It will reflect ultraviolet rays from the sun and helps to reduce the conduction of heat through the insulation. The installation team added soffit and roof vents to bring the house up to today's energy building code of 1 square foot of ventilation for ever 3 square foot of area.

Eagle Shield then did a “drill and fill” on all exterior walls installing dense-packed cellulose insulation. This brought the wall R-value from R-0 up to R-11. They chose this option because dense packing cellulose reduces air infiltration. The holes were drilled on the exterior of the building and were patched and textured to match the existing stucco.

Under floor insulation was installed at the perimeter of the concrete foundation wall. Eagle Shield used rigid board insulation to bring the R-value from R-0 to R-12. They added a ground cover vapor barrier of 6-mill plastic ground cover, which reduces the amount of moisture entering the home. The installation team also air sealed all of the plumbing and electrical penetrations in the crawl space with expanding foam.

The homeowners say that as the installation team completed each step of the insulation and air sealing process, they immediately noticed an improvement in comfort and recognized how consistent the temperature was from room to room. In the past, the family room was so uncomfortable in the summer that they would sometime sit in their more comfortable kitchen to watch the television through the hall entrance. Now, they can sit in the family room during the summer with the windows open because the area stays comfortable throughout the day.

The homeowners also comments on how they no longer hear the traffic on the street in front of their home which is an added benefit of overall home insulation.



How To Do Your Own Home Energy Makeover

The Anaheim energy makeover contest-winning home demonstrates how homeowners can significantly reduce their energy costs and improve home comfort and safety. You can do your own home energy makeover by participating in Anaheim Public Utilities' Home Investment Package (HIP) Program. The HIP program bundles various rebate offers into a one-stop shop designed to make homeowners sit up and take notice of the more than \$15,000 in savings they can realize through the program. These savings include a waiver of permit fees for energy-efficient improvements that can cost up to \$1,000, and up to \$14,000 in incentives. Plus, special low-cost financing is provided by the Electric & Gas Industries Association (EGIA).

For more information on Anaheim's Home Investment Package, please visit www.anaheim.net and click on Public Utilities, then Home Investment Package.

About The Contest

The Home Investment Package (HIP) Home Energy Makeover Contest was sponsored by Anaheim Public Utilities and the Electric & Gas Industries Association (EGIA) to demonstrate how homeowners can significantly reduce their energy costs and improve home comfort and safety. More than 500 Anaheim residents entered the contest, and twenty finalists were selected through an application screening process that identified those homes with the greatest potential to demonstrate energy savings. Contest sponsors donated the products and services featured.

For more than 100 years, Anaheim Public Utilities has served Anaheim water and electric customers with low rates and reliable service. Anaheim Public Utilities is Orange County's only publicly owned water and electric utility. The Electric & Gas Industries Association (EGIA) is a non-profit organization dedicated to advancing energy efficiency and renewable energy solutions through a nationwide network of contractors, distributors, manufacturers and utility companies.

To view a series of these fact sheets on other aspects of the Home Energy Makeover, go to www.egia.org/anaheim

Sponsor Information



www.eagleshield.com

Eagle Shield and Air Secure Insulation & Acoustical
Are Proud Sponsors Of The Anaheim
Home Energy Makeover Contest

