



ECOBROKER International

Green Topic Pages

House as a System

Technology Snapshot & Benefits:

When building new energy-efficient houses or making existing houses more efficient significant energy gains can be realized, just by treating the House as a System. You cannot make changes to one part of a house without affecting the many other parts that make up the house system. The house system is made up of the building envelope (foundation, walls, ceiling), the heating and cooling system, the water heating system, the lighting system, the appliances, and a fireplace if present.

Estimated Cost Savings:

Making the home as tight as possible has an incredible impact on your heating and cooling bills.

Issues:

Tight homes need sealed-combustion furnaces and water heaters or outside air for combustion in wood-burning fireplaces. Common mistakes include putting non-sealed combustion furnaces and water heaters or wood-burning fireplaces in tight energy-efficient homes. With a tight house, something as simple as turning on your dryer or a down-vented range can pull the ashes and combustion by-products right out of the fireplace or down the chimney of the furnace or water heater and back into the house.

Increasing the insulation in a wall or attic without sealing the air leaks from the inside into that space can lead to mold and rotting problems.

Proper roof insulation is important to prevent ice damming on roofs.

Regional Issues:

In cold climates, sealing penetrations on the inside into walls and attics is important in keeping the moist inside air from getting into the cold spaces and condensing. In warm climates, it works the other way around. You need to keep warm moist outside air from reaching the back of the drywall that can be colder due to air conditioning.

Sealed combustion appliances are a must for any climate region.

Installation (Getting It Done):

With a new house, you want to build it as tight as possible. Install sealed combustion gas appliances and a controlled ventilation system.

More Information On This Topic:

[Building Science Corporation: House Design Recommendations by Climate Region](http://www.buildingscience.com/housethatwork/)

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Building Science Corporation's guidelines for quality energy-efficient design and construction.

[The Energy and Environmental Building Association Criteria](http://www.eeba.org/technology/criteria.htm)

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The Energy and Environmental Building Association (EEBA) has developed goals, objectives and criteria for energy and resource efficient buildings. They provide guidance for design, construction and comprehensive rehabilitation (gut-rehab) of low-rise residential and small commercial buildings less than 20,000 square feet (1,900 m²) floor area.