

Features of an Energy Efficient House That May Qualify for the Montana TAX CREDIT



If you are planning to build a new home, you have the opportunity to design and build an energy-efficient home that will use 20 - 40 percent less energy than a standard house and provide year-round comfort. All energy-efficient homes have certain features in common: high levels of insulation, tightly sealed structures, **ENERGY STAR**®-rated windows and appliances, and controlled mechanical ventilation system. For new houses, the credit is 25 percent of the cost for certain high efficiency HVAC, water heating equipment and the "extra" cost to go beyond code minimums for windows, doors, and insulation levels. The ENERGY STAR® Home Program offers you a way to achieve your goal of building an energy-efficient home. For more information about ENERGY STAR® homes and products go to: www.northwestenergystar.com

1. AIR SEALING AND LIGHTING The energy code requires air sealing around windows, doors, electrical boxes on exterior walls and ceilings, and openings where pipes and wires pass through the building shell. The code also requires an air barrier such as drywall, spray foam, sealed poly or foam board behind bathtubs and showers on exterior walls, rim joists and dropped ceilings. A blower door test for air tightness is now required for all new houses. An efficient house with good indoor air quality is well sealed and has a mechanical ventilation system that allows the occupants to control air flow through the house. Code required mechanical ventilation options range from an efficient bathroom fan to heat recovery ventilation (HRV) systems. HRVs bring fresh air into the house and reclaim about 70 percent of the heat from the stale air that is being drawn out of the house. Some HRVs qualify for the tax credit. A poorly sealed house where random gaps and weather conditions control air flow through the house will have high energy bills, uncomfortable drafts and possible moisture damage caused by interior air with moisture getting into and condensing within walls, ceiling and floors. The code requires at least 75 percent of the permanent light fixtures must have high efficiency bulbs such as CFLs or LEDs.

2. EXTERIOR WALL The energy code path requires a minimum of R-21 in a standard wood framed wall. Wood has a relatively poor insulation value, so when possible, insulating material should occupy the maximum possible volume within a homes walls. A better wall would have a minimum of R-25 insulation.

3. STRUCTURAL INSULATED PANELS (SIPs) Panels are usually composed of a sandwich of oriented strand board and polystyrene foam. The polystyrene core comes in thicknesses of 5.5 to 11.5 inches and can be used as floors, walls, and ceilings.

4. SLAB AND FROST-PROTECTED SHALLOW FOUNDATION The energy code path requires slab edges to be insulated to at least R-10 for 4 feet (combination of vertical and horizontal placement) or R-15 with in-floor heat. These foundations provide an economical and energy-efficient foundation.

5. FOAM FOUNDATION SYSTEMS Typically R-10 on each side of insulated concrete forms (ICFs) made of foam and filled with concrete. These provide an excellent insulating value for foundations, basements, and above ground walls.

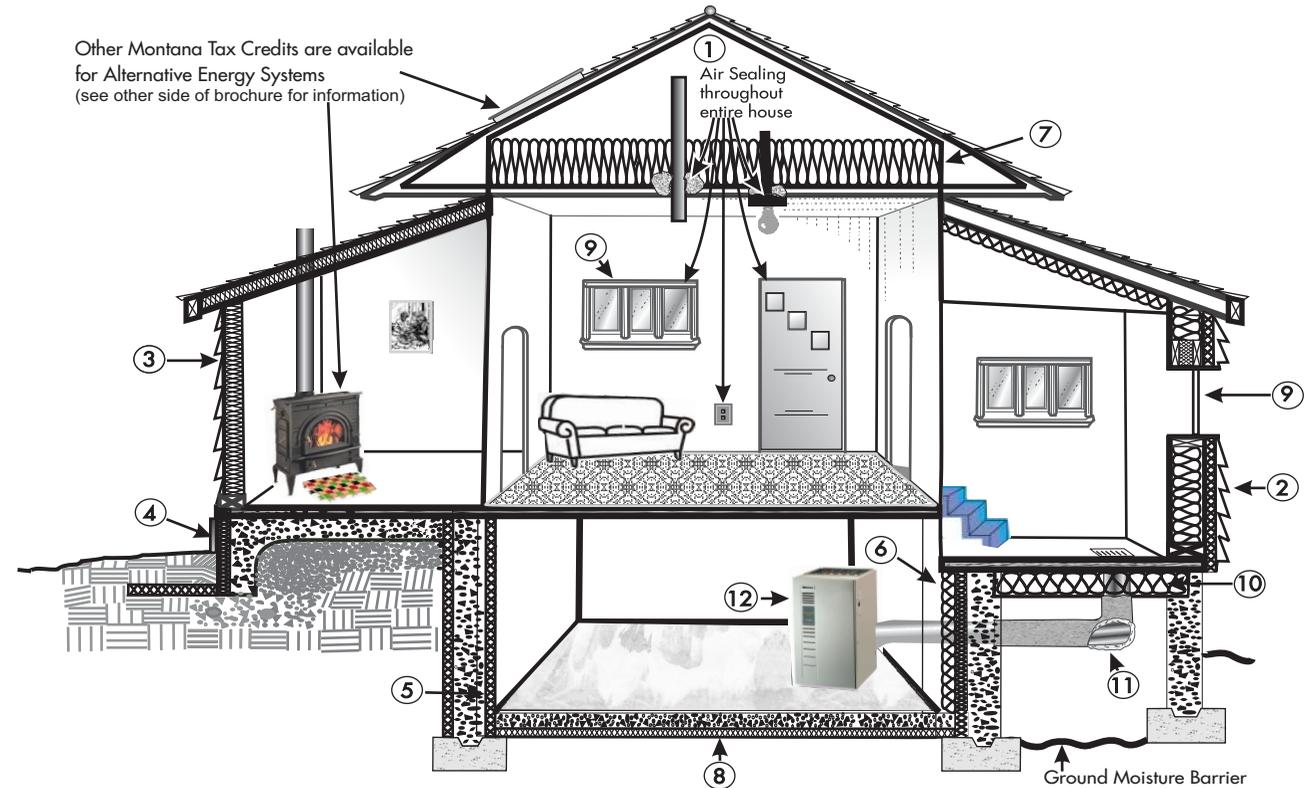
6. BASEMENT INSULATION The energy code path requires basements to be insulated; finishing is not required. R-19 insulation is required for cavity insulation or insulation placed within a framed wall, or R-15 continuous insulation without any framing. A REScheck™ analysis may allow lower levels of insulation. Basement insulation can be placed on the interior or exterior wall.

7. ATTIC INSULATION AND RAISED-HEEL TRUSSES The energy code path requires a minimum of R-49 insulation in the attic. R-38 is acceptable in the entire attic with an energy truss that provides R-38 at the outer wall. A better home would have energy trusses with R-49 insulation, in which case the added cost to go above R-38 would be eligible for the tax credit.

8. FOAM INSULATION under the floor is especially beneficial for an in-floor heating system. The energy code does not require insulation under the entire concrete floor. Because it exceeds the code, its cost is eligible for the tax credit.

9. WINDOWS AND DOORS The energy code path requires at least a U-.32 window rating for both windows and doors. To be eligible for the tax credit, they must exceed code and have a U-factor of .30 or less. See new home restriction on other side.

10. FLOOR AND CRAWLSPACE The energy code path requires R-30 in floors over unheated spaces, such as a tuck-under garage or unheated crawl space. Another code option is to insulate the crawlspace foundation wall to R-19 when insulation is placed in a framed wall or R-15 with continuous insulation without any framing.



11. DUCT WORK The energy code requires that both supply and return ducts be sealed, and if located in unheated parts of the house such as garage or attic, they must be tested for tightness. Supply ducts in unheated attics require at least R-8 insulation and R-6 on supply and return ducts in other unheated parts of the house.

Duct tape is not a good duct-sealing material because its adhesive often fails. Duct mastic, available in buckets and caulking tubes from heating wholesalers and home improvement stores, is the preferred sealant.

12. HEATING AND COOLING SYSTEMS must be sized in accordance with ACCA manual J or other approved method. In the past, many systems have been oversized, resulting in higher installation and operating costs. High efficiency equipment, such as a gas furnace with at least a 95 AFUE rating and other HVAC equipment listed on the other side of this brochure, are eligible for the tax credit.

A programmable thermostat automatically adjusts your home's temperature setting to help save energy when you are asleep or away from home. Automatic thermostats can provide savings of about 10 percent in heating costs when used as directed. The energy code requires them for new furnaces.