For information and resources about insulation...

U.S. Department of Energy Consumer Energy Information, "Insulation Fact Sheet" at http://www.ornl.gov/roofs+walls/insulation/ins_01.html

U.S. Department of Energy Consumer Energy Information, "Loose-Fill Insulations" at http://www.eren.doe.gov/erec/factsheets/insulate.html

U.S. Environmental Protection Agency Consumer Fact Sheets, "Increased Insulation" at http://yosemite1.epa.gov/estar/homes.nsf/content/ResFactSheets.htm

Minnesota Department of Commerce Home Energy Guides, "Home Insulation" at http://www.commerce.state.mn.us/pages/Energy/InfoCenter/pdfs/homeinsulation.pdf

Humboldt Energy Task Force

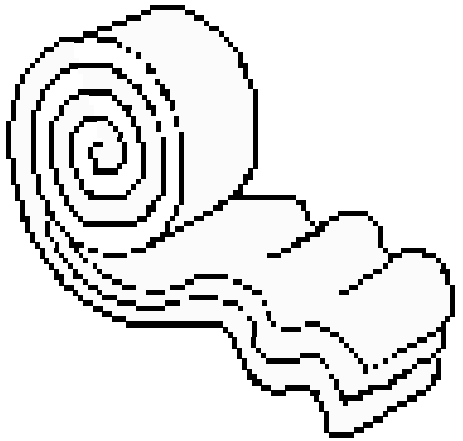
The Humboldt Energy Task Force (HETF) is a coalition of local government agencies working together to provide local energy conservation tools and solutions for Humboldt County. For more information please contact:

- City of Eureka (707) xxx xxxx
- City of Arcata (707) xxx xxxx
- Humboldt Co. (707) xxx xxxx

Humboldt Energy Task Force
mailing info goes here…

FAST FACTS ABOUT INSULATING YOUR HOME

Energy Brief # 3



Humboldt Energy Task Force

INTRODUCTION

Heating and cooling ("space conditioning") account for 50–70% of the energy used in the average American home. Unless your home was constructed with special attention to energy efficiency, adding insulation will probably reduce your utility bills. Even if you own a new home, adding insulation may save enough money in reduced utility bills to pay for itself within a few years, continue to save you money for as long as you own the home, and increase the resale value of your house.

IMPORTANCE OF INSULATION

Inadequate insulation and air leakage are leading causes of energy waste in most homes. Proper insulation is a key element for a more comfortable and energy efficient home. It is important to have a continuous boundary of insulation between the conditioned, indoor spaces and the unconditioned, outdoor spaces. This boundary is referred to as the "building envelope" and consists of the walls, floor, and ceiling or roof. Low insulation levels and gaps or voids in the insulation materials can provide paths through which heat and air easily flow into or out of the residence. Care must be taken to shape the insulation material around piping and electrical work without compressing it.

INSULATION PRIORITIES

- Insulate your *attic* to the recommended level, including the door, or hatch cover.
- Insulate *under floors above unheated spaces, around walls in a heated basement or unventilated crawl space, and on the edges of a slab-on-grade.*
- Insulate *exterior walls* to recommended levels in new house construction. When remodeling or re-siding your house, consider using the levels recommended for new construction in your existing walls.

INSULATION MATERIALS

Available insulation materials include batt-type, loose-fill, rigid foam panels, and spray-type. Insulation materials are rated according to their ability to resist heat flow. This thermal rating is commonly known as an "R-value." The higher the R-value of a material, the better its ability to resist heat flow. The U-value, the reciprocal of the R-value, characterizes the rate of heat loss.

R-Values for Insulation Materials

Insulation Material	R-Value per inch of thickness
Batt-type	2.9 to 3.8
Loose-fill	2.2 to 4.2
Board stock	3.5 to 8.0
Spray-type	2.9 to 6.2

BEFORE YOU INSULATE

- Reduce air leakage—Air travels through any openings in your walls, floors, or ceilings. It is important to stop these leaks before adding attic insulation that may make them less accessible. Attic insulation itself will not stop these leaks, and you will not save as much energy as expected.
- Control moisture—Water vapor from the interior can pass into the insulation and condense, significantly reducing the material's insulating value and leading to mold growth, peeling paint, and rotting of structural wood. Use a vapor barrier on the warm side of the insulation and adequate ventilation to avoid moisture problems.
- Improve ventilation—Adequate ventilation will prevent excessive moisture and the build-up of stale air and indoor air pollutants.

BENEFITS OF INCREASED INSULATION

- Improved comfort—Increased insulation reduces radiant heat exchange between our bodies and the surrounding interior surfaces and minimizes temperature differences between rooms.
- Lower utility bills—Increased insulation reduces the amount of energy consumed for home heating and cooling, lowering current energy bills and protecting you from future increases in fuel and electricity costs.
- Improved indoor air quality—Increased insulation reduces the gaps and voids through which unconditioned air can leak into a house, avoiding dirt, dust, and other impurities that negatively affect indoor air quality.
- Improved resale value—Increased insulation levels result in a more comfortable home with better indoor air quality and lower utility bills, which can translate into higher resale value.