

NORTHCOAST ENERGY MASTERS

7007 Krick Road (Rear) • Bedford, Ohio 44146

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THE COLORADO STUDY

Scientists, engineers, and contractors have realized for many years that the most commonly used building insulation material isn't really the best insulator. This "conventional wisdom" of energy conservation has been confirmed and quantified through scientific studies at one of the world's leading research universities.

Energy "shoot-out" at the UC corral

In December 1989 and January 1990 the University of Colorado (UC) at Denver School of Architecture and Planning studied the energy conservation efficiency of two test buildings that differed only in the insulation systems that had been installed.

- Building "A" - was insulated with 5.5 inches of cellulose in the walls and R30 of loose-fill cellulose in the ceiling.
- Building "B" - received R-19 unfaced fiberglass batts in the walls and R-30 kraftfaced batts in the ceiling. Over the two-month period a number of different tests and measurements were performed.

Here's what the UC Denver researchers learned.

In spite of the fact that tests showed Building "B" was about 12% tighter than Building "A" in the uninsulated state, after insulation was installed building "A" was far tighter than "B." Calculations showed that cellulose tightened the building 36% to 38% more than fiberglass.

An overnight heat loss test revealed that after nine hours (midnight to 9 a.m.) the cellulose-insulated building was 7 degrees F warmer than the fiberglass building.

Most significantly, after three weeks of monitoring the cellulose-insulated building had used 26.4% less energy to heat than the fiberglass building.

In their statement of conclusions, the researchers note that the results suggest cellulose performs as much as 38% better than Fiberglass. The performance advantage of cellulose in temperate climates appears to be about 26%, and the report projects that "this benefit would become more significant in more severe climates."

Since production of cellulose requires much less energy than mineral fiber insulation, which is made in gas-fired furnaces, and foam plastics, which are petrochemicals, the "embodied energy" in cellulose insulation is much lower per "R" of insulating value - than other materials. From the national perspective these savings at the production stage must be added to the superiority of cellulose as an insulator.

Consider Cellulose ... If you're serious about saving, money heating and cooling your home, about recycling and responsible use of resources, and about saving energy for our country the only insulation to seriously consider is cellulose.



1999, 2000, 2001, 2002, 2003, 2004 & 2005



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Frequently Asked Questions About Cellulose Insulation

Here are some answers to frequently asked questions about cellulose insulation and why thermal protection in homes and buildings is important.

What is Insulation and How does it Work?

Insulation is a term describing any material that reduces - resists - heat flow by conduction. Conduction is a physical property of all materials, and along with "radiation" and "convection" describes one of three principal mechanisms of heat transfer.

The conductance of a material is the rate of heat flow that is induced by temperature differences between one side of a specific thickness of the material and the other. A material's conductance results in the thermal transmittance - U-value - of a specific assembly of materials - such a wall - that have thickness and density, and conduct heat over specific periods of time. The "R-factor" of a material is the inverse of its U-value. These factors help engineers, architects and code officials calculate energy efficiency of buildings.

Why is Cellulose Insulation Better?

There are several key reasons cellulose insulation is a superior product for buildings:

- Higher R-per-inch values than most comparable mineral fiber materials;
- Reduces air-leakage, and provides a tremendous sound barrier;
- Not as subject to convective heat loss;
- Fire safe, made from over 75% recycled material - environmentally friendly
- Approved by all major code bodies, well tested and field proven.

Is Cellulose Insulation fire-safe?

Cellulose insulation is arguably the safest organic building material since it is treated with persistent fire retardants (i.e.: Borax). The United States Consumer Products Safety Commission does not believe cellulose insulation is a hazardous product. The vast majority of fire and insulation experts agree that proper installation of insulation, not the specific material used, determines the safety of the insulation system in any building.

Can Cellulose Insulation help reduce building air-leakage?

Cellulose insulation has been shown to reduce air-leakage through wall and ceilings of buildings. Colorado University found cellulose at least 36 percent better than fiber glass in tightening buildings, which resulted in a 26%+ overall improvement in energy efficiency.

Why should consumers ask for cellulose?

Research and cost analysis shows that cellulose insulation performs better than (popular mineral fiber) competing forms of insulation. Homes with cellulose insulation are more comfortable, healthy and fire-safe. In addition since it is an environmentally friendly product - consisting of recycled materials -- consumers know they are helping the planet.



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How can I tell if I really got the advertised “R”-factor.?

In the real world consumers still need to be careful about the “advertised” R-factors and the realities of installed performance of insulation. Independent university researchers have documented actual performance of cellulose insulation in real buildings can exceed energy efficiency of mineral fiber insulated walls by nearly 40%, resulting in over a 26% reduction in whole building energy use.

Consumer Beware - not all insulation is created equal ... Choose Cellulose!



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