



APPLICATION CASE STUDY : CATHEDRAL CEILING INSULATION RETROFIT

PRODUCT COMPARISON: ICYNENE® VERSUS FIBERGLASS

Synopsis:

- ✓ Icynene® lowered heating energy costs by 24% in a 12% colder climate period
- ✓ Icynene® provided a more consistent temperature
- ✓ Icynene® corrected a mold and mildew problem

The Problem

Mr. Johann Eyolfson of Grindstone Point, Manitoba (approximately 90 miles north of Winnipeg, Manitoba, Canada) was unhappy with his high electric heating bills and inability to maintain a consistent comfortable temperature.

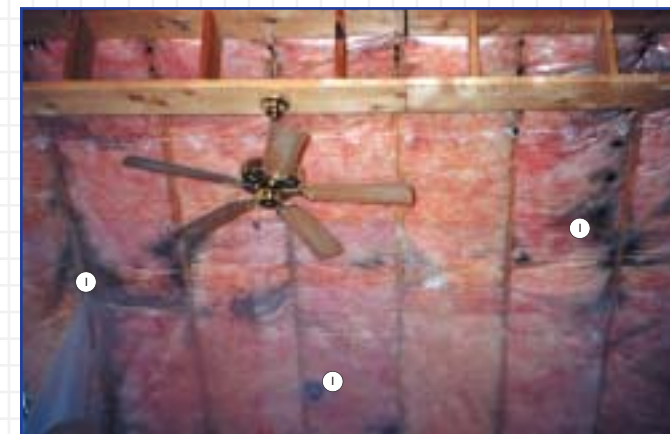
The home was 2,236 square feet and utilized forced air electric heat with heat recovery ventilator, and mechanical ventilation. The house was only occupied on weekends and holidays. When not occupied during the week, all thermostats were set at 10 degrees Celsius (50° F.)

The structure had a web truss roof and R50 fiberglass insulation that had been in place for 3 years. The walls featured 2" x 6" construction with 6" fiberglass batt insulation. Both the walls and ceiling included 2 layers of 6 millimeter polyethylene which had been caulked and taped. Post and pad foundation was present and there was an insulated pony wall around a heated crawl space.

The Icynene Insulation System®

Healthier, Quieter, More Energy Efficient®

For more information, contact your local Icynene Licensed Dealer:



(1) Black mold in 3 year old fiberglass R-50 batt insulation



(2) Hot humid interior air had leaked past the poly, through the batt insulation, and come into contact with the cold air in the venting, thus causing condensation and mold.



Visit our website: www.icynene.com
or call
1-800-758-7325



THE ICYNENE® ADVANTAGE : A Closer Look at Air Superiority in Action

The Solution – Retrofit with Icynene®

The R50 fiberglass insulation was removed from the cathedral great room and two adjacent wings (1660 sq.ft.) The home owner wanted to insulate and seal the ceiling so that the warm moist interior air remained contained in the living space of the home.

Removal:

R50 fiberglass insulation (1660 sq. ft.)

Retrofit:

with R-20 (5.5 inches) of Icynene® Insulation

Sprayed on:

- underside of roof deck
- gable ends
- soffit vents, now sealed
- gable vents, now sealed



Icynene® is sprayed to a depth of 5 1/2 inches and adheres directly to the roof deck.



Icynene® is sprayed directly on to the roof deck. There are no air vent channels.

The remaining portion of the attic floor space, approximately 576 sq. ft., was left intact with the original R40 fiberglass batt insulation.

The Results

	Sept 1999 – Jan 2000 Before Icynene®	Sept 2000 – Jan 2001 After Icynene®
Heating degree days ^{*(1)}	3,071	3,441
Kilowatt hours used ⁽²⁾	14,540	11,170

(*Heating Degree Days = Each degree that the average daily temperature is below the base temperature (65 °F) constitutes one heating degree day. This data was supplied by Environment Canada)

The time period in which the electricity consumption was measured for The Icynene Insulation System® was approximately 12% colder than the time period for the R-50 fiberglass insulation.

Electricity consumption was reduced by 24% due to the retrofit with Icynene®. The reduction in electricity consumption due to Icynene® would have been even lower if the heating degree days were the same between the two measurement periods.

The electricity consumption would have been reduced further if the fiberglass had been removed from the remaining portions of the attic and walls. The homeowner was aware of the potential added benefit of completing the project but did not want to be involved in further renovations.

The Icynene® Insulation Retrofit:

- ✓ Saved money with lower energy costs. A 24% savings in this case.
- ✓ Maintained a more consistent temperature throughout the house.
- ✓ Eliminated the mold and mildew problem in the cathedral ceiling.

The Icynene Insulation System®

Icynene® is a low density soft foam insulation which is sprayed into/onto walls, crawlspaces, attics and ceilings by Icynene Licensed Dealers. Sprayed as a liquid, it expands to 100 times its volume in seconds to create a superior insulation and air barrier. Every crevice, crack, electrical box, duct, and exterior penetration is effortlessly sealed to reduce energy robbing random air leakage. The Icynene Insulation System® adheres to all surfaces and remains flexible so that the integrity of the building envelope seal remains intact over time.

Icynene® is ideal for residential, commercial, industrial, and institutional indoor applications.

The product is:

- Healthier:** Water based. No CFCs, HCFCs, formaldehyde, or volatile organic chemicals. Seals out dust, pollen, and other allergens from entering the structure. Air sealing minimizes the potential for condensation, molds, mildews.
- Quieter:** Air sealing blocks out air borne noise from entering the structure. Minimizes noise in plumbing run walls.
- More Energy Efficient:** Up to 50 % energy savings versus traditional insulation.

Information about The Icynene Insulation System® can be obtained by calling Icynene Inc. (800-758-7325), visiting the web site www.icynene.com, or contacting your local Icynene Licensed Dealer.

Footnotes:

(1) Data supplied by Environment Canada.

(2) Data supplied by Manitoba Hydro.