



**We'll change the way you think about**

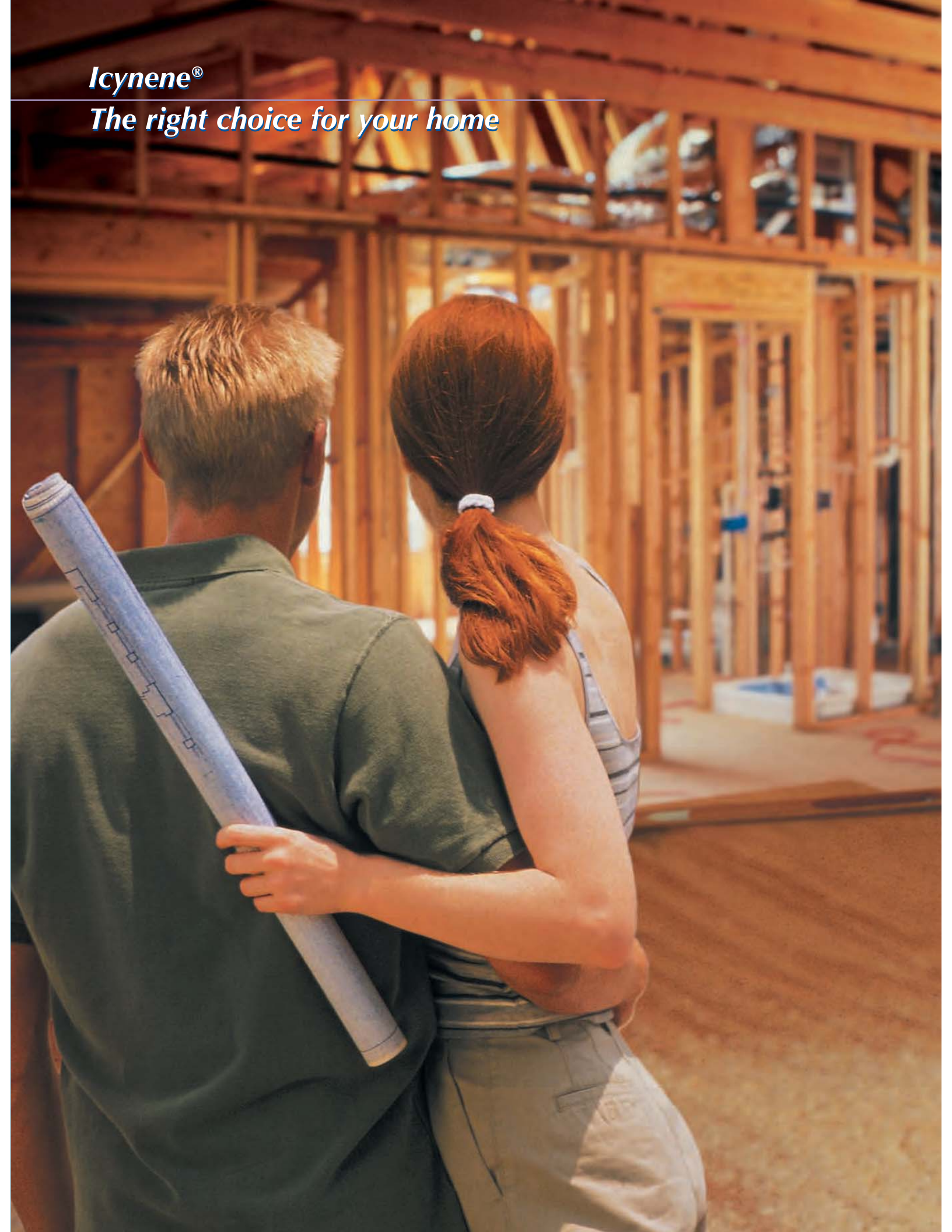


**ICYNENE™**

HEALTHIER, QUIETER, MORE ENERGY EFFICIENT®

*Icynene®*

*The right choice for your home*





*In our complex world, is there an insulation material designed to meet the needs, challenges, and concerns of today's homeowners?*

## **Icynene®. The only insulation system that protects what matters most – your family and your home.**

Make room for a revolutionary insulation material. Not long ago, very little thought was given to the type of insulation installed in homes. But, families today face problems that weren't even issues when conventional insulation was developed: rising energy costs, unwanted noise, allergies, asthma and mold. Times and attitudes are changing. Homeowners, like you, are beginning to appreciate the increasingly important role insulation plays in their lives.

People consider their homes as a safe haven – a place where they can escape the noise and pollution of modern everyday life. Consequently, insulation must play a multiple role. No longer there just to insulate, today's insulation must protect a home by providing a Healthier, Quieter, More Energy Efficient® environment.

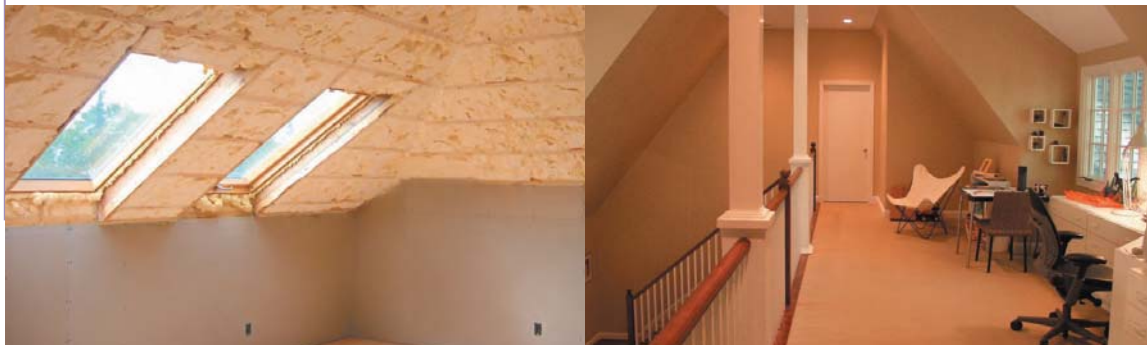
What's more, today's insulation should address a real threat to occupant comfort and health – that real threat is air leakage. It has been documented that enough air escapes from a typical house every day to fill two Goodyear blimps ([www.urbanoptions.org](http://www.urbanoptions.org)). And, extra insulation means little without an effective air barrier! Unlike conventional insulation, Icynene® is an insulation and air barrier system that protects both new and existing homes from the adverse health and economic effects of air leakage.

### **Air leakage – a problem shared by new and old homes alike**

This may come as a surprise to you, but the most important job of insulation should be to control air leakage.

What do we mean by air leakage? Conventional fiber insulation, regardless of R-value, leaves gaps and seams around framing materials where air can get in and out. This can lead to costly energy loss, transfer of airborne pollutants and pollens into your home and moisture build-up. When warm outside air meets cool air-conditioned inside air, or when heated inside air meets cold outside air, it can lead to condensation, moisture build-up, and a host of other problems, such as the growth of mold or mildew within the building cavity.

Thermal performance, health issues, noise control, and a home's structural soundness – all are negatively affected by air leakage.



## **Glossary of Terms**

### **Air Barrier System**

The assembly of components used in building construction to create a plane of air tightness throughout the building envelope and to control air leakage.

### **Air Permeance**

(See opposite panel)

### **Building Envelope**

The external elements (walls, floor, ceiling, roof, windows and doors) of a building that enclose conditioned space; the building shell.

### **Conventional Insulation**

Fiberglass, cellulose and rockwool.

### **CFC (Chlorofluorocarbon)**

Any of various halocarbon compounds consisting of carbon, hydrogen, chlorine, and fluorine, once used widely as aerosol propellants and refrigerants. Chlorofluorocarbons are believed to cause depletion of the atmospheric ozone layer and have been phased out as part of the Clean Air Act.

### **HCFC (Hydrochlorofluorocarbon)**

Compounds containing carbon, hydrogen, chlorine and fluorine. They have shorter atmospheric lifetimes than CFCs and deliver less reactive chlorine to the stratosphere where the "ozone layer" is found.

### **HFA Propellant**

Usually hydrofluoroalkane-134a, used in chlorofluorocarbon-free (CFC-free) aerosol delivery systems.

### **HFC (hydrofluorocarbon)**

Compounds containing carbon, hydrogen, and fluorine. HFCs are a class of replacements for CFCs. Because they do not contain chlorine or bromine, they do not deplete the ozone layer. However, this class of compound is considered a powerful greenhouse gas, which many countries are now considering banning.

### **Heat loss**

Heat that is lost from a building through air leakage, conduction and radiation. To maintain a steady interior temperature, heat losses must be offset by a combination of heat gains and heat contributed by a heating system.

### **Infiltration**

Uncontrolled leakage of air into a building through cracks around doors, windows, electrical outlets and at structural joints.

### **R-Value**

(See opposite panel)

### **Vapor Permeance (perm rating)**

(See opposite panel)



## What can a homeowner do?

Not only does Icynene® work as an insulation, it also works as a complete air barrier system to deliver optimal airtightness. Unlike conventional insulation products that allow air to move in and out of your home, Icynene® foam insulation is applied as a liquid and softly expands to 100 times its initial volume, sealing all gaps and crevices that compromise airtightness. Icynene® delivers a perfect fit for cavities of any shape, providing a continuous, protective barrier that virtually eliminates air leakage.

## The secret to Icynene® is the way it seals

Icynene® works like a high-performance fabric because it is a breathable material that, just like your favorite outdoor sportswear, is windproof and resists water. Thanks to its air sealing capabilities, Icynene® minimizes both airflow and moisture build-up to help maintain a warm and dry building envelope. The result? A healthier, longer-lasting home.

By sealing the building envelope like no other conventional insulation can, Icynene® delivers the kind of benefits today's homeowners are looking for:

### 1. Improved Indoor Air Quality (IAQ)

With asthma rates on the rise, as a homeowner you can take comfort in knowing that Icynene® is a Green material that helps to improve the quality of the indoor air you and your family breathe.

Icynene® reduces random air leakage and limits the penetration of outdoor allergens and pollutants. Combined with proper mechanical ventilation, Icynene® is the ideal base for a healthy structure.

Because Icynene® is 100% water-blown, PBDE free, and does not off-gas HFCs into the indoor environment, it is considered an ideal base for a healthy indoor environment.

### Effective Moisture Management

Icynene® delivers advanced moisture management by forming an air seal to minimize air movement and accompanying moisture. By minimizing moisture transport through the home, Icynene® helps to prevent condensation and reduces the potential for mold growth within walls and ceilings. Even if Icynene® gets wet (through a roof leak, for instance), the material doesn't wick water. Icynene®'s open-celled structure allows it to remain unaffected by wetting and drying so that it can continue to operate at peak performance levels. Water simply drains right through Icynene® without spreading so that it, as well as surrounding materials, can quickly dry.

### 2. Increased sound control

Traffic, neighborhood activities, and plumbing runs can be the sources of annoying sounds – the unwanted noises that can invade living spaces, hindering comfort and enjoyment. These sounds most commonly travel through the air.

# Healthier

*Conventional insulation is unable to seal all gaps and crevices, particularly those around electrical outlets, joints and vents. Icynene® fills every nook and cranny to minimize air leakage and create a Healthier, Quieter, More Energy Efficient® indoor environment.*

By sealing the building envelope, Icynene® effectively minimizes airborne sounds. Icynene® is perfect for dampening noises from home theaters, playrooms, plumbing runs, and roads.

### 3. Maximum energy conservation

Icynene® has earned the Energy Star® because, when installed, homeowners can look forward to reduced monthly energy costs of up to 50% versus conventional insulation. And the savings don't stop there. Eliminating random air leakage allows Icynene®-insulated homes to maintain the same heating and

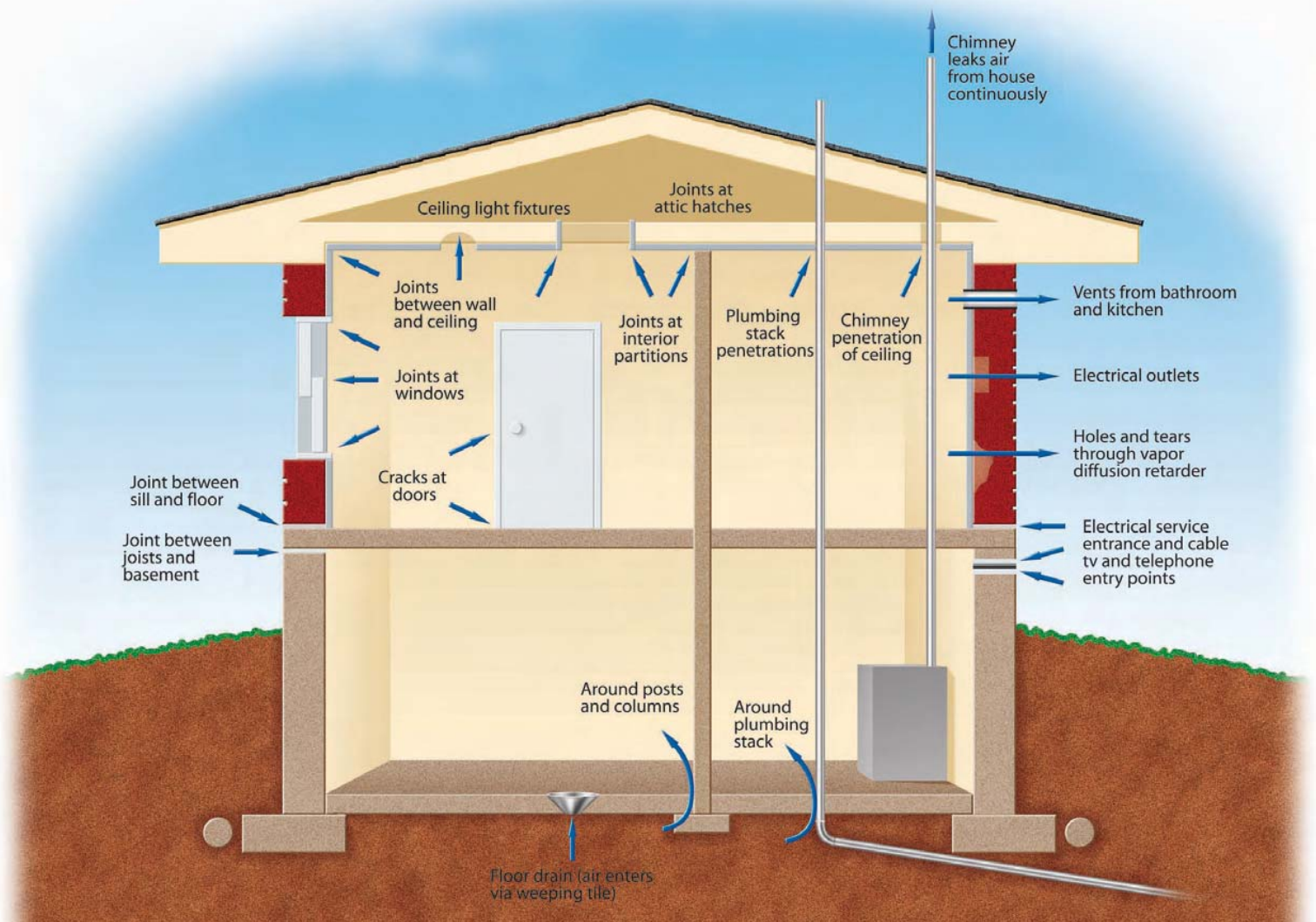
cooling performance with smaller, less expensive HVAC equipment.

In addition to the immediate monthly energy savings, many homeowners qualify for an Energy Efficient Mortgage if they install Icynene® in their home, giving them another opportunity to save even more money over the long run.

# Quieter

# More Energy Efficient

## Typical Air Leakage Paths



## Go Green with Icynene®

Homeowners today are increasingly aware that the choices they make impact their health, safety, comfort and pocket book as well as the welfare of their community and the natural environment. Homeowners understand that a Green home equates to a safe, durable, healthy and efficient home.

When used in place of air-permeable insulation, Icynene® not only reduces energy consumption by up to 50% but also the related greenhouse gas emissions. With the average North American home emitting approximately 10 tonnes of greenhouse gas per year, using Icynene® can make a significant difference to the environment! Icynene® is 100% water-blown foam insulation; water being a non-ozone depleting substance (ODS) that does not contribute to global warming. The other blowing agent commonly used by foam insulation manufacturers is HFC 245fa. HFC 245fa has a global warming potential of 950, which means it has 950 times the global warming potential (GWP) of carbon dioxide. Icynene believes that being a good corporate neighbor and a responsible steward of the world's resources means providing innovative solutions that help address issues such as global warming.

And, Icynene® is a proven insulation that enhances the comfort of your living environment. That's why it is the insulation of choice for high profile projects such as the **American Lung Association's national demonstration Health House®**, **EarthCraft House™**, **model reMODEL**, and **This Old House®'s Carlisle renovation project**.

## Ideal for new home and remodeling projects

In its spray form, Icynene® is ideal for new homes where the interior surfaces of walls, ceilings and floors are exposed. The soft, flexible foam is sprayed-in-place and expands to 100 times its initial volume in seconds. By permanently adhering to the construction material, Icynene® controls air leakage, especially in those problem areas such as crawlspaces, rim joists and around doors and windows.

Icynene®'s pour fill formula is perfect for older homes and renovation projects because it eliminates the need for gutting or tearing down existing walls, allowing you to maximize energy efficiency while preserving the home's original architectural details. Through small pre-drilled holes, Icynene® is poured-in-place and gently rises to perfectly fill and seal the enclosed, uninsulated cavity.

# Green



## Exposing the Myth of R-Value as the Only Way to Evaluate Insulation

For years, the performance of insulation has been gauged by its R-Value. The general rule of thumb has been the higher the R-Value, the more effective the insulation. The truth is, higher R-Value doesn't mean better consumer value.

R-Value is the numeric value given to an insulation material that is measured in a controlled laboratory setting. So, how can we consider R-Value as the be-all and end-all of an insulation's ability to control airflow, energy loss and condensation in a real world situation? While it is a way of measuring heat transfer from one material to another (conductive heat flow), it is not a true measure of an insulation material's performance.

### Is There a Better Way to Evaluate Insulation?

There are three components to consider when measuring the effectiveness of insulation:

#### 1. R-Value

Contrary to popular belief, all insulation materials of equal R-Value will not perform equally in your walls and ceilings. While insulations of equal R-Value perform the same in the controlled conditions of a laboratory, they do not all maintain that same R-Value in the walls and ceilings of a building. Some off-gas over time, diminishing in thickness and efficiency. If there are gaps between the insulation and other building materials (as is often the case with batts), the effective R-Value of the insulation can be reduced by as much as 50 percent from the maximum R-Value rated on a product. A high performance insulation like Icynene® does not off-gas, sag or settle. Therefore, its ability to totally seal a home and create a complete air barrier has greater consumer value. Icynene®'s R-Value will not diminish over time.

#### 2. Vapor Permeance (perm rating)

Vapor permeance measures the rate at which the insulation material diffuses moisture. The lower the perm rating, the better. Ideally, insulation should allow low rates of moisture diffusion to occur, just enough to let adjacent building materials breathe in order to prevent moisture entrapment. Icynene® insulates and air-seals to significantly reduce heat and moisture flow through the building envelope. This is an important factor in combating condensation and mold growth within the walls and ceilings.

#### 3. Air Permeance

An insulation material that doesn't completely fill the entire cavity results in air pockets, which permit air movement within the cavity. Condensation inside walls, ceilings, floors and attics occurs when warm, moist air is allowed to pass through or around insulation and contacts a cold surface. Icynene® is proven to deliver optimal airtightness to minimize airflow through the building envelope. It fills every crevice and acts as an air barrier to restrict air leakage, removing up to 99% of airborne moisture movement in a structure. Icynene® is both an insulation and air barrier system that provides advanced moisture management to significantly reduce the potential for mold and mildew growth. By minimizing air movement and introducing mechanical ventilation, your home can be healthier, quieter, and more energy efficient.

This all-encompassing triad provides a realistic, more accurate reading of how insulation performs in a real world situation. And no other insulation material delivers the full proven solution like Icynene®.

We're changing the way you think about insulation.



Perfect for walls (new or existing), ceilings, floors, basements, and every other nook and cranny found in homes. Additionally, oddly shaped structures, such as bay windows, dormers, cathedral ceilings, arches, and other architectural features are easily insulated and sealed with Icynene®.

### Ask for Icynene® by name

Homeowners are more involved in decision-making and specifying products because they are better educated about Green Building issues, such as energy efficiency and home health. Your decision to go with foam insulation is the right one. Just be sure you purchase the right foam insulation. Don't be misled into thinking all foam insulation products are equal. Settle for nothing less than Icynene® – the only proven foam insulation that delivers the performance features homeowners need for comfortable, healthy living.

### Icynene® - The best of all worlds

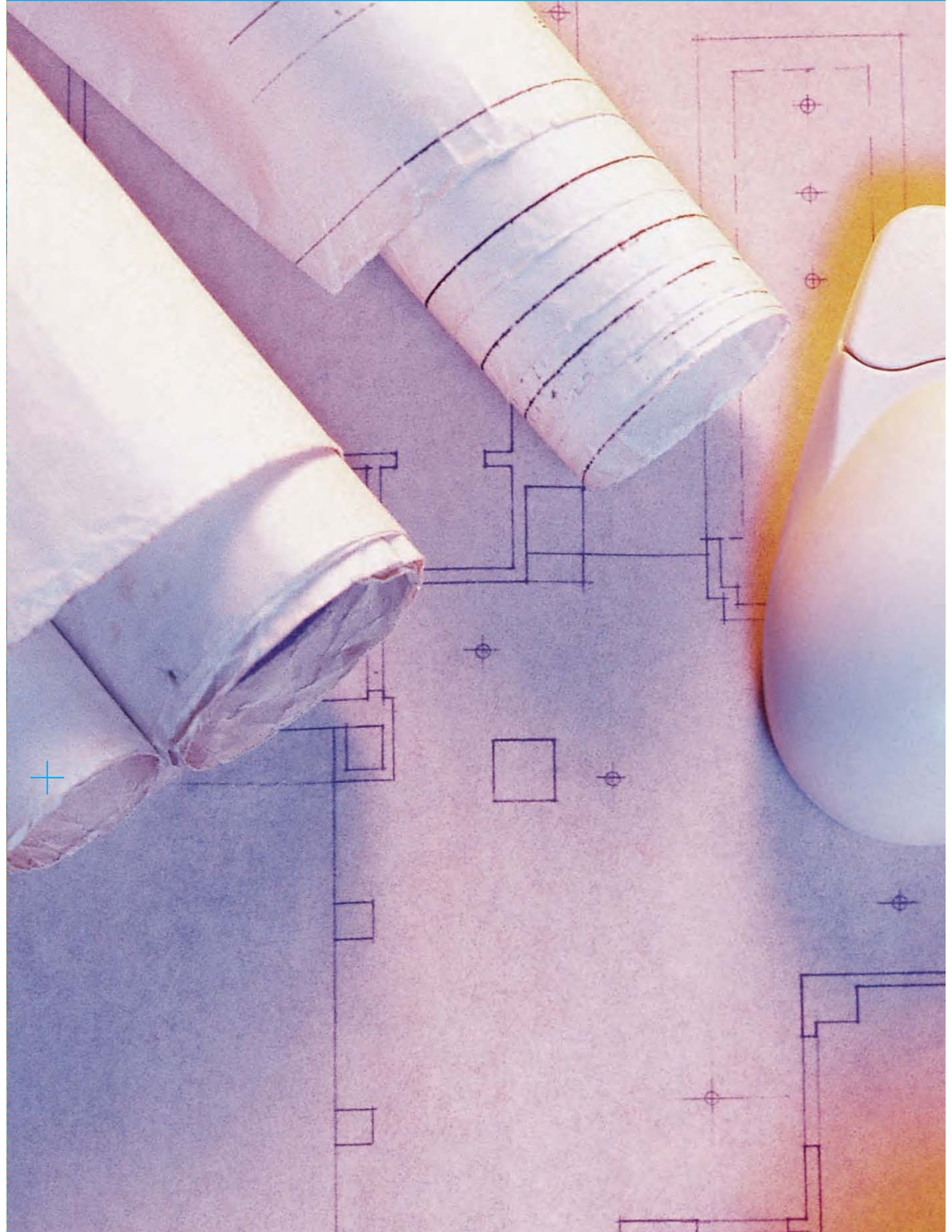
In a perfect world, fuel costs would be going down instead of up. Air quality would be getting better instead of worse. Asthma and allergy rates would be declining instead of the other way around. Our cities would be quiet and peaceful, without traffic and construction noise.

We can't do much to change the world outside, but we can do something about the part of the world we can control – inside our homes.

Icynene® provides:

- Up to 50% monthly energy savings
- Improved indoor air quality
- Increased comfort - draft-free; moisture management
- Enhanced sound control
- Higher home resale value

Don't compromise the quality of your home, choose Icynene® for better living.



## Icynene® is featured in

- **model reMODEL** renovation showcase homes
- **Award-winning EarthCraft House™** renovation
- **This Old House®**'s 25th Anniversary Carlisle renovation project
- **Bob Vila's** dotCOM dreamHome
- **American Lung Association** – Health House® National Demonstration Home (Florida, Washington, Oregon, Iowa, Michigan, and Minnesota)

## Homeowner Testimonials

- *With Icynene® in our townhouse, our energy bills are 35% less than our neighbors who used fiberglass, and with the addition of an air filter, our son is having less asthma attacks. Icynene® has really made the difference!*

– Murray Clarke, Toronto, Canada

- *The attic of my cabana-style building would typically be about 150 degrees in the summer. After re-insulating the underside of the roof deck with Icynene®, the attic is no more than 1-5 degrees different than the inside of the building below.*

– Bob Miller, Sarasota, Florida

- *We have a ceramic floor above the garage and in the winter, the floor would often be 18 degrees colder than the room temperature. After removing the fiberglass and adding Icynene®, the temperature difference is now less than 2 degrees. And we no longer have frozen pipes!*

– Todd & Jeri Scebold, Ames, Iowa

## Product Approvals

- ICC-ES, CCMC, ITS/Warnock Hersey

## Affiliations

- NAHB, NCHI, AIBD, AIA CEU Provider, EEBA

## Product Testing

- Icynene® is not a food source for mold based on testing by Texas Tech University
- Icynene® meets ALA Health House®, EarthCraft™ and Energy Star® energy efficiency standards
- Icynene® contains no HFCs, PBDEs, and has no detectable VOCs after 30 days.
- Icynene® does not cause corrosion



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For more information, visit [Icynene.com](http://Icynene.com) or call us at 1-800-758-7325

