

# The Facts about Polyurethane Foam

## **The Highest R-value in the Market**

Insulation is rated in terms of thermal resistance –R-value- which indicates the resistance to heat flow; the higher the R-value, the greater the insulating effectiveness. 1.8 to 2 lb. polyurethane foam has the highest R-value (7 per in.) of all readily available, cost effective insulations available in the market today.

## **Long Term Energy Savings**

Your investment in polyurethane foam will reap long term returns in saved energy dollars, comfort, and control of indoor air quality, health and safety for the life of your home. Because polyurethane foam is a closed cell insulation material delivering the highest R-value per inch, your heating and cooling equipment works more efficiently, uses less fuel and maintains consistent and uniform temperatures.

## **Downsizing HVAC Needs**

Polyurethane foam can help save money on equipment costs, too. With polyurethane foam insulation, you may be able to downsize your investment in the mechanical heating and cooling equipment needed. For example, in the polyurethane foam house, a 60,000 BTU furnace could provide the same indoor comfort level as a more costly 80,000 BTU unit. Polyurethane foam is a smart investment, right from the start.

- Polyurethane foam completely and efficiently insulates and seals around penetrations throughout the building framework, such as electrical outlets and plumbing fixtures.
- Polyurethane foam creates a protective thermal envelope around your living space.
- Polyurethane foam provides your home with a fully sealed, seamless barrier against wind and the intrusion of air and thermal driven moisture.

## **Reduces or Eliminates Convection Looping**

Up to 40% of a home's energy loss can occur through the buildings envelope, not just through windows and doors. Slight imperfections in framing, changes in temperature and pressure within the home can create air movement within the stud cavity that will reduce the energy efficiency of fibrous or large open celled insulation systems. Along with air, moisture can enter the building cavity, condense and create structural as well as health concerns. 1.8 to 2 lb. polyurethane foam will not permit the uncontrolled movement of air and moisture through your walls.

## **Meets Building Code Requirements**

Don't worry about durability. Polyurethane foam is approved by all three national building codes and will perform for the life of your building. Its exceptional thermal and structural characteristics will save you, and generations to come, from the problems associated with the high cost of energy.

## **Creates a Healthy Living Space**

Spray polyurethane effectively protects your living space from unwanted moisture build-up and condensation caused by warm moist air meeting cool dry air within the building envelope (stud cavities, attics). 1.8 to 2 lb. polyurethane foam effectively seals your home against unwanted moisture. You can now use modern ventilation techniques to create the best, most habitable indoor living space - free of excess moisture and airborne pathogens

– for a healthy, more comfortable home.

“Spray polyurethane foam insulation can be applied to a home under construction and will not only insulate, but will also reduce air leakage in the building envelope.”

-US Department of Energy Insulation Fact Sheet, August 1997

Spray polyurethane foam alone “...can provide air-and water-tight barrier.”

-US Department of Commerce brochure, NISTIR4821

### **Controlling Air Infiltration**

The answer to America’s home energy-saving challenge.

United States government energy labs estimate that air infiltration wastes up to 40% of every home heating and cooling dollar. It is one of the country’s most critical home energy problems. Unfortunately, most residential buildings were constructed before the scope of the problem was widely known. But today, new homes are being built utilizing the polyurethane foam solution, right from the start. Air infiltration is caused by leaks around windows and doors, and by the spaces, joints, voids and cracks hidden inside the structure of your home. This unwanted air penetrates the building shell and travels inside walls and ceilings, under baseboards, and along hidden pathways in the plumbing and electrical system. Uncontrolled air disrupts the temperature, air pressure and humidity of the living space, in any weather. Heating and cooling system work harder to maintain your family’s comfort. Energy is wasted and subsequently causing higher utility bills. Even the best-built houses have seams and gaps that permit air infiltration.

### **Some Advantages to Polyurethane Foam**

- Contains no urea formaldehyde
- Odorless
- Insulates hard-to-reach areas
- Resists water
- High strength-to-weight ratio
- High R-value
- Effective in a wide range of temps
- Chemically resistant
- No food value for rodents
- Saves space
- Adds little weight to building
- Eliminates drafts
- Adds structural strength
- Uses no fasteners
- Adheres to most surfaces
- Dimensionally stable
- Does not shrink or settle
- Seamless application
- Resists mildew and fungus

### **The Bottom Line**

Unlike other home insulations, the spray-applied seamless sealing quality of polyurethane foam insulation system eliminates the air infiltration problem.

Polyurethane foam seals the gaps and spaces right from the start, while your house is being built.

Sprayed Polyurethane Foam has been used as a roofing and insulation material for over 40 years. At one time it was considered to be an alternative to built-up roofing; SPF roofs now protect a wide range of buildings. During this time, SPF systems have proven themselves through comprehensive, independent studies to be dependable, long lasting, and very affordable. Today there are foam roofs that have been in place for over 4 decades, and by all appearances they should be able to last indefinitely as long as they are properly maintained.