

## Product Range

We are the primary distributor and application specialist for HealthySeal™ Spray Polyurethane Foam (SPF) products developed by MultiFoam LLC as the super-efficient residential and commercial foam insulation solution. Each HealthySeal™ product is beneficial to both the homeowner and the environment when compared to other insulating products because it:

- Is a high-yield spray insulation product for both residential and commercial construction
- Is an excellent performance insulation material for thermal and sound requirements
- Is formulated with the environment in mind, is water blown, has no VOCs, urea formaldehyde, ozone-depleting chlorofluorocarbons (CFC's) or hydrochloroflourocarbons (HCFC's) — thus, no toxic emissions once the foam is cured
- Contains bio-based polyols, made from annually renewable agricultural resources
- Is the greenest, most environmentally friendly insulation in the industry
- Is very cost-effective

We currently offer two distinct products:

### **HealthySeal™ 500**

- Open cell, ultra-light, 0.5 lb. weight two-part bio-based polyurethane insulation system
- R-value of 3.6 per inch, yielding an R-value of 13 in a 3.5" stud wall
- Provides as good or better insulation with a 3.5" stud exterior wall as traditional insulations do with a 6" stud construction
- Provides greater living area and significantly reduces building costs by eliminating the need for larger, more expensive 6" studs, windowsills, and door jambs

### **HealthySeal™ 1700**

- 1.7 lb. weight two-part, bio-based, water blown polyurethane insulation system closed-cell product is used where a higher R-value is required by local codes or customer preference
- R-value of 6.5 per inch, yielding an effective R-value of 23 in a 3.5" stud wall

## **HealthySeal™ and Your Home**

### **About SPF Home Insulation**

There is no better way to seal your home from air and moisture intrusion, save on costly utility bills, strengthen your home, and protect your health from dangerous mold than SPF home insulation. In summary, SPF home insulation:

- Virtually eliminates air and moisture infiltration — directly inhibiting pathogens and allergens including mold
- Makes your home more comfortable
- Provides for greater stabilization of air flow due to full building envelope seal
- Saves 30%-50% on energy costs yielding a typical investment payback of 4-5 years versus fiberglass insulation
- Adds strength to the building structure
- Is permanent and will not sag, settle, or break down
- Keeps dust and pollen out
- Reduces maintenance and wear of HVAC equipment
- Deadens sound travel and noise

### **R-values and HealthySeal™**

“R” means resistance to heat flow — the higher the “R” value, the greater the insulation power, and ultimately, any fuel savings. As little as 1” of sprayed HealthySeal™ insulation, applied between the studs once a house has been framed and enclosed with exterior siding, can provide significant “R” value in addition to controlling air and moisture infiltration.

A comparison of the “R” value of HealthySeal™ 1700 to other building components under ideal conditions of a 3” application has shown that HealthySeal™ 1700 provides:

- Up to 89% more insulating value than blown fiber blanket
- Up to 100% more insulating value than sprayed cellulose fiber
- Up to 114% more insulating value than the industry standard 3” fiberglass batt

See the “R-Value Myth” article on the research tab of this website.

### **What Else, Besides R-value, Determines Efficiency and Fuel Savings?**

In addition to comparing insulation R-values before you buy, several additional factors also warrant your careful consideration. Any fuel savings from insulation will also depend upon:

- The climate in which you live, including wind speeds
- The type and size of your house
- Your fuel-use patterns and family size

Also, remember:

- If you buy too much insulation, you may spend more than what you will save on fuel
- To get the best obtainable R-value, it is essential that any insulation be installed properly

### **How Much HealthySeal™ Perimeter Insulation is Necessary?**

We recommend no less than 1” sprayed HealthySeal™ insulation to achieve the minimum airflow and vapor barrier requirements. To meet code mandated “R” values, thickness will vary between floor, wall, and ceiling applications. Geographic location and typical weather conditions should always be considered to prevent condensation potential. A 3” application is typically the minimum thickness recommended to prevent condensation potential.

### **Ceiling and Roof Applications for Sprayed HealthySeal™ Insulation**

Sprayed HealthySeal™ insulation is used to seal off air infiltration and provide high insulation efficiencies in the ceiling area of new homes. Ceilings are among the most important areas to address when controlling the infiltration and providing insulation for the residential environment. If this portion of the building envelope is not properly sealed and insulated, a major portion of your energy costs will have been wasted.

### **Other Potential Applications in Your Home**

- Masonry walls
- Exterior walls
- Floors
- Foundations
- Basements
- Crawlspace
- Underside of Metal Decks to prevent “sweating”

## **HealthySeal™ Q & A**

### **What is HealthySeal™?**

HealthySeal™ is a semi-rigid, non-toxic, soy and bio-based polyols spray foam insulation that offers added value as an air and moisture barrier solution that windproofs and seals wall, floor, and ceiling cavities to prevent air movement — including spaces around electrical outlets and light fixtures, at baseboards and where walls meet windows and doors. So everything from frigid winter air to hot, humid summer air cannot seep through your walls to the inside, nor can your comfortable, interior air enter the walls to condense. By virtue of its low permeability to air, its adhesion to other building materials, and its flexibility, HealthySeal™ provides value beyond insulation. It provides superior air leakage control, moisture control, and sound control — thus becoming a one-step insulation and moisture, vapor, and wind barrier system.

And, unlike fiberglass and other “loose fill” insulation methods that do not windproof building cavities, the air sealing characteristics of HealthySeal™ provide virtually the same R-value in your home as it does in the laboratory where the listed R-value is measured.

### **What are the advantages of flexible foam?**

Any foam such as HealthySeal™ that adheres to building materials, must remain flexible in order to maintain its air seal. Buildings expand and contract with changes of season and temperature. If the foam is too rigid, it will inevitably develop cracks along the studs and ultimately the air seal will be destroyed. While other types of non-rigid insulation — such as batts and loose fill cellulose — can slip, sag, or settle, leaving uninsulated gaps. Blower door tests have shown that a home insulated with semi-rigid HealthySeal™ foam, with no polyethylene vapor barrier, measures 1.2 ACH at -50 Pa. depressurization. This is well within the 1.5 ACH rating for the most energy efficient home.

### **What are the advantages of HealthySeal™?**

Aside from offering all the same benefits of other soft foam products, HealthySeal™ is American made and therefore more affordable. As well as simplifying the construction process for the builder, HealthySeal™ eliminates the major causes of building envelope problems, air-borne moisture movement and entrapment. Heating and cooling costs are typically reduced by 30% to 50%, and smaller, less expensive heating and cooling equipment can be used.

### **Do I need Attic and Roof Venting?**

No. Attic and roof venting were developed because of the inferiority of non-foam insulation. In the winter in northern climates, moisture typically condenses on the interior side of insulation because the interior wall temperatures are relatively cold compared to the warmer air toward the center of the house. The only way to get the moisture out of the house was the creation of ridge and soffit venting. Unfortunately, this also results in the loss of heat. In the summer, venting is typically used to remove warm air from uninsulated attic spaces, one of the purposes of which is to protect the underside of roof shingles from excessive heat. With HealthySeal there are no such problems. The temperature of rooms in the winter is uniform throughout, thus eliminating any chance for condensation to occur. In the summer, the attic is just slightly warmer than the rest of the house, thus there is no potential for roof shingle damage. Keep in mind that an attic floor application still requires ventilation, but to protect the roof, not the foam.

### **What are the advantages for residential use?**

A more energy efficient home means that energy costs can usually be reduced by as much as 30-50%. This means a more comfortable home that easily and cost-effectively maintains desired temperature and humidity levels. With HealthySeal™, the temperature difference between the top and bottom of a room varies by just a couple of degrees — unlike fiberglass.

HealthySeal™ offers some sound proofing qualities as well because HealthySeal™ creates a continuous sound barrier against airborne and reverberating noises. As a value add, HealthySeal™ can be used in interior walls around media rooms, plumbing and master suites.

Most importantly, HealthySeal™ offers improved indoor air quality. In conjunction with the mechanical ventilation system, a well-sealed building envelope is the key to superior indoor air quality in which your family can live a healthier life.

### **What is HealthySeal™ made of?**

HealthySeal™ is a soy and other bio-based polyols water-based formula that contains no formaldehyde, or ozone depleting gases like CFCs or HCFCs. Like other foam insulation products in its class, it has the texture and look of angel food cake and is made up of millions of tiny cells. These cells are filled with air and provide permanent control of air and airborne moisture movement. HealthySeal™ contains no materials that emit harmful gases. Unlike other foam insulation products, such as Canadian made Icynene, HealthySeal™ is American made.

### **How long does HealthySeal™ take to cure?**

Less than one minute. The foam is created in seconds after spraying. You can watch it expand within seconds to 100 times its original volume. It can be covered with sheetrock boards within just a few minutes.

### **Does HealthySeal™ absorb water?**

No. HealthySeal™ is hydrophobic and does not wick moisture. In fact, if a small piece were to be placed in a bucket of water, it would float for days or even weeks. Upon removal, it would dry rapidly and lose none of its insulating properties.

### **Does HealthySeal™ entrap moisture?**

No. HealthySeal™ is a breathing foam. Any moisture in the building's concrete or lumber easily escapes through the insulation as the building dries out — thus eliminating any risk of mildew or mold. However, it cannot be applied to wet substrates as it will not adhere properly.

### **Does the foam change physically over time?**

No. HealthySeal™ is an inert plastic — its physical and insulating properties are constant, as is its air seal.

### **Is HealthySeal™ environmentally friendly?**

Yes. HealthySeal™ is an environmentally safe, “green” product — manufactured from soybean and other vegetable extracted oils. In fact, it is “triple green” — for a green wallet, green home, and green environment (reducing the demand for fossil fuels to heat and cool homes).

### **What are HealthySeal™'s flammability and fire-rating characteristics?**

HealthySeal™ contributes no fuel in the event of fire and it will not sustain flame upon removal of the flame source. However, like fiberglass, it will be consumed by flame, and gypsum board or other acceptable thermal barriers are required by applicable building codes.

### **What does the smoke contain?**

Virtually the same as that of the smoke from all organic materials, including wood, it is made up of many gases, including carbon dioxide and carbon monoxide.

### **Are there any harmful emissions as a result of fire?**

No. HealthySeal™ is safe for both you and the environment. It is vegetable polyol based, water-blown, and does not produce formaldehyde, CFCs, or HCFCs

### **How is HealthySeal™ installed?**

It is sprayed onto any open surface and studded wall — including metal. A trained HealthySeal™ installer is required. With any open surface, HealthySeal™ can be sprayed on once electrical and plumbing services are in place. In seconds, it expands to 108 times its initial liquid volume, permanently adhering to the surfaces of the surrounding building materials and sealing all gaps. See “The Process” page on this website.

### **How long has HealthySeal™ been around as a viable product?**

HealthySeal™ was first introduced to the insulation market in 2002. It received immediate national recognition by winning the 2003 Green With Envy Award from the NAHB (National Association of Home Builders) and Tech Builder Magazine.

### **Are there any electric wiring overheating problems associated with HealthySeal™?**

No. HealthySeal™ has tested negative for these concerns.

### **Is the insulation corrosive to metals?**

No. It is non-corrosive, neutral — neither acidic nor alkaline — and ideal for metal construction.

### **Does HealthySeal™ support bacteria or fungal growth?**

No. HealthySeal™ does not retain water; therefore it does not support bacterial or fungal growth.

### **What about insects and vermin?**

HealthySeal™ has zero food value to insects and vermin, however, like any other insulation, it does not present a sufficient barrier to their entry if they decided to chew through it regardless of its zero food value. EnerGsmart has not had a reported incident of something chewing through HealthySeal™

### **What are the acoustic properties of HealthySeal™?**

An effective air seal, HealthySeal™ eliminates the gaps through which sound travels and is superior in controlling common mid-range frequencies — including the human voice, stereo music, and plumbing noise. In general, the greater the thermal insulating abilities of a material, the better acoustic barrier it is.

### **Does HealthySeal™ contain Urea Formaldehyde?**

No.

### **Does HealthySeal™ break down, sag, or shrink?**

No. HealthySeal™ does not shrink, settle or sag. The reaction that creates the stability of HealthySeal™ is irreversible and it cannot break down into its constituent parts.

### **What is the R-Value of HealthySeal™?**

R-value is derived from a controlled laboratory test of an insulation's resistance to conductive heat flow. HealthySeal™'s R-value is 3.6/inch for HealthySeal 500 and 6.5/inch for HealthySeal 1700. However, due to the air-sealing nature of the product, on an R-Value-to-R-Value basis, it significantly outperforms fiberglass in almost every geographic location. For further information, see the "R-Value Myth" article by David South on the Research tab of this website.

### **Are these aged values?**

No. Unlike CFC/HCFC foams, the R-value of air-filled HealthySeal™ doesn't decline as it ages.

### **Is there a difference in the R-value of a HealthySeal™ in wall and ceilings?**

R-values of insulating materials are measured in laboratories and are designated a nominal R-value per inch. In the wall or ceiling of a building, most factory made insulation materials suffer a reduction in performance due to air leakage and infiltration — so their “real” insulating value may be as low as 50% of the nominal R-value of the insulation they contain.

By contrast, the insulation of a wall containing HealthySeal™ will perform more closely to the laboratory tested R-value of the material and seals the wall cavity from air infiltration as well.

HealthySeal™ is particularly well suited to steel frame construction. HealthySeal™ expands to 100 times its original size as it is installed, adhering to surrounding building components. It completely seals joints, crevices, and voids — including difficult to insulate spaces such as steel stud “U” and “C” sections, double studs, and non-standard stud locations. A continuous air and vapor barrier is formed around the building structure in a single application.

### **At what stage is HealthySeal™ installed?**

HealthySeal™ is installed when fiberglass would be installed. It is installed after the windows and roof are in and electrical, framing, and plumbing inspections are complete — and after any other electrical or mechanical system located behind the drywall is installed. It is the last installation to take place before drywall installation.

### **How does HealthySeal™ address sick building syndrome?**

HealthySeal™ air-seals the building envelope against wind and airborne moisture — creating a comfortable, draft and condensation free environment in a single application. By sealing out dust, allergens, odors, and other pollutants, HealthySeal™ allows your air management system to do its job so that the indoor air quality is healthier than outside air. HealthySeal™ does not emit gases or odors, and offers no support to bacteria, fungus, insects, or vermin. An environment insulated with HealthySeal™ is a much healthier haven for those suffering from respiratory problems such as asthma, allergies, and chemical sensitivities.

### **Can HealthySeal™ eliminate moisture problems?**

Yes. Because air leakage is usually the culprit, the only way to eliminate moisture problems is to air-seal the building envelope. By eliminating air movement through walls, floors, and ceilings, moisture-laden air cannot pass through and affect the indoor environment. This allows you to control humidity levels to within the 45-50% range — a level at which molds, mildew, dust mites, and many allergens cannot be sustained.

### **Does HealthySeal™ have limited uses?**

No. The HealthySeal™ solution can be applied to either new or existing residential or commercial construction, adhering to virtually any surface. It allows for architectural freedom and eliminates the insulating and air-sealing woes of metal construction and odd shaped building cavities. With HealthySeal™, your new or existing building is permanently protected, sealed off from wind, pollutants and airborne sound, and resistant to moisture-related condensation problems.

### **What are some of the value-added benefits?**

Sound and odor control. While HealthySeal™ is not intended as a soundproofing solution, its superior fit reduces airborne sound transfer through roof, floor, and walls — which means it does double duty and becomes part of a cost-effective soundproofing solution. Outside noises such as air, road, and rail traffic are significantly less noticeable. Inside, there are far fewer complaints about plumbing and neighbor noise. And, by elimination of air movement through common walls in multi-dwelling units, HealthySeal™ eliminates cooking odor migration.