

## How We Achieve Ultra Energy Efficiency

The EnergyWise/BaySystems holistic approach leaves nothing to chance. It ensures that each structure will perform optimally, every time. It is a complete turnkey system that eliminates uncertainty and simplifies the construction process for everyone involved – especially the building owner.

### Step 1: EnergyWise Ultra Energy Efficient, Healthy Engineering

Armed with proprietary software generated from experience derived from NASA thermal consultants for the Mercury, Gemini and Apollo space programs, EnergyWise creates a detailed energy analysis report from each building plan. The report accurately projects the heating and cooling consumption, comparative savings and the optimal heating and cooling system sizing. Then, an EnergyWise engineer designs the HVAC duct system which is critical to proper air distribution. The resultant usage calculations are guaranteed as well!\*

### Step 2: BaySeal™ Sprayed Foam Insulation

For years, Bayer has been the nation's leading manufacturer of polyurethane raw materials. BaySystems' sprayed foam insulation product, BaySeal™, is a polyurethane foam that is applied by installation professionals.



BaySeal™ is applied to exterior walls and roofs as a heated liquid which then quickly expands, completely filling every open

space. It cures within seconds providing a thermal, sound and condensation barrier in a single application without seams or gaps. BaySeal™ also substantially adds to the structural integrity of the building providing additional protection during inclement weather.

### A Tight Thermal Envelope Like An Insulated Cooler

In a typical structure, up to 50% of conditioned air is lost from gaps, thus resulting in excessive heating and cooling bills. The seamless BaySeal™ insulation system performs proficiently, dramatically reducing air drafts which results in a consistently comfortable structure.

BaySeal™ foam seals the nooks and crannies where dust and pollen can enter, creating a much healthier environment for people who suffer with hay fever and other allergies. BaySeal™ foam also helps prevent condensation, which is key in averting mold growth.

Once applied, BaySeal™ forms the foundation of a structurally strong, virtually airtight thermal envelope. Plus, it is one of the safest and most environmentally friendly insulation products available.

### Bottom Line Benefits

Not only is an EnergyWise/BaySeal™ structure ultra energy efficient and good for the environment, it will also save you money, provide a far more comfortable space with less dust, and is ultimately worth more than the typically built structure. Your building will be engineered to maintain under 50% relative humidity while the HVAC system is running, thus providing our "Healthy Structure Advantage" (even dust mites and mold cannot survive and grow at that humidity level). Finally, your high performance building will also play a significant role in reducing our nation's need for foreign oil.

## Examples Using The EnergyWise Ultra Energy Efficient, Healthy Engineering System And BaySeal™ Polyurethane Foam Insulation

### Thayer Elementary School, Thayer, Missouri

60,000 square feet of conditioned space

#### Project Description:

1. New school using the EnergyWise system
2. Hydro-Temp Geo-Thermal heat pumps



**Actual Usage:** 60,000 square feet of conditioned space  
 x 1¢ actual usage per square foot per month  
**\$600 average usage (heating and cooling bills) per month**

**In Comparison:** Actual usage of conventionally built schools in the area:

60,000 square feet of conditioned space  
 x 10¢ to 20¢ usage per square foot per month  
**\$6,000 to \$12,000 average usage per month**

### Hilton Garden Inn – Richardson, Texas

86,401 square feet of conditioned space



As a new construction project, we implemented the complete EnergyWise/BaySeal™ program, resulting in an energy tax deduction of \$1.80 per square foot in addition to engineering an ultra energy efficient, healthy hotel.

#### Project Description:

1. 6 inches of BaySeal™ .5 foam under the roof deck
2. 6 inches of BaySeal™ .5 foam in the exterior walls
3. Double-pane, low-e, thermally-broken aluminum windows
4. Double-pane, low-e, glass doors
5. The EnergyWise caulking package
6. 16 SEER heat pumps

**Guaranteed Usage:** 86,401 square feet of conditioned space  
 x 4¢ guaranteed not to exceed  
 per square foot per month  
**\$3,456 guaranteed average (heating and cooling) per month**

**In Comparison:** Conventionally built Hilton Garden Inns owned by Magnolia Lodging:

86,401 square feet of conditioned space  
 x 11¢ actual usage per square foot  
 per month  
**\$9,504 average usage per month**