

Season after season, whatever  
the weather, cuts up to **40%**  
off heating fuel costs!



It's got to be  
**SYSTEM  
2000<sup>®</sup>**



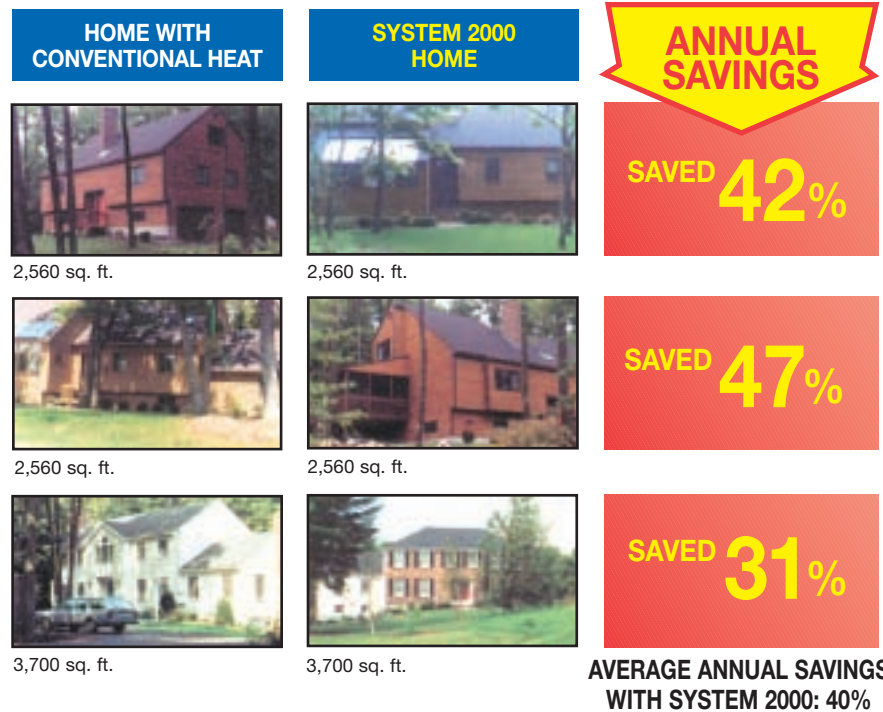
To get the most benefit from this information, may we suggest:  
 Locate your heating bills from the last two years and also a calculator to add them up. In addition, determine if your home is heated by oil, gas, propane or electricity.  
 System 2000 can cut fuel use for all these fuels.

# Your heat and hot water system is a lifetime investment. So take a minute to learn why System 2000, the hybrid heating system, is right for you!

## TWO WAYS HOMEOWNERS SAVED MONEY BY INSTALLING SYSTEM 2000:

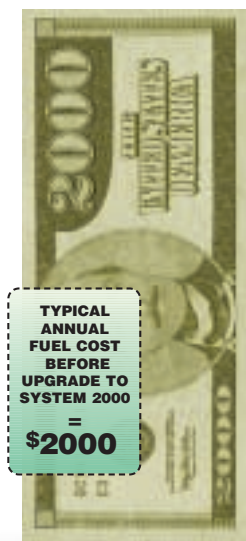
### 1. NEW CONSTRUCTION: HEAD TO HEAD COMPARISONS SHOW HOW SYSTEM 2000 SAVED FUEL

System 2000 was tested against modern, conventional boilers in three sets of brand new, identical homes. The homes were all built by the same contractor, in similar geography, and are identical in every important specification: same size, same materials, same insulation. Only the heating systems were different. And, of course, the fuel consumption. Your home is no doubt your primary investment. **Installing or replacing its heating system is an opportunity to improve your investment.** Take a few minutes here to learn why System 2000 is the right choice no matter what style of home you own.



### 2. UPGRADES: SHOWN BELOW ARE FOUR EXAMPLES WHERE HOMEOWNERS UPGRADED TO SYSTEM 2000. AVERAGE FUEL COST SAVINGS FOR THESE FOUR HOMES WAS \$1000 (= EXTRA MONEY THEY PUT IN THEIR POCKET).

COMPARISONS ARE BASED ON AN ORIGINAL ANNUAL ENERGY BILL OF **\$2000**

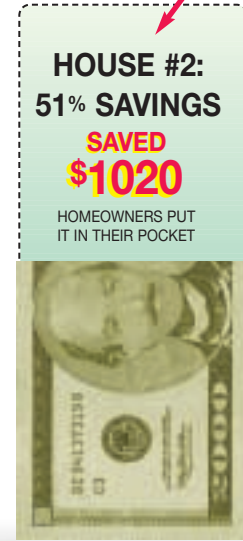


TYPICAL ANNUAL FUEL COST BEFORE UPGRADE TO SYSTEM 2000 = **\$2000**

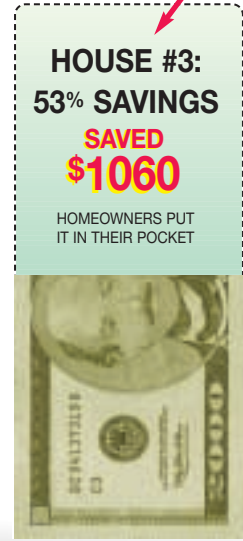
R.W., Bernardsville, NJ. Replaced a boiler that had a 79% efficiency. Converted to 2 zones. **Saved 50%**



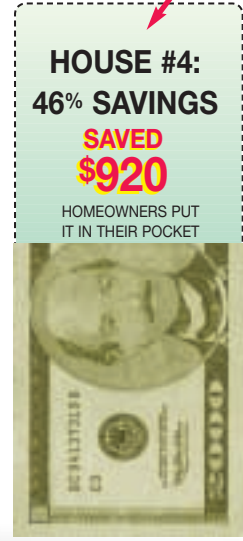
E.W., Middleton, CT. Replaced a boiler and oil fired water heater, converted to 2 zones. **Saved 51%**



W.Y., Cromwell, CT. Replaced a boiler and water storage tank, converted to 2 zones. **Saved 53%**



M.L., Bennington, VT. Converted his system from a boiler with a modern burner. **Saved 46%**



ANNUAL COST OF FUEL BEFORE UPGRADE

COST OF FUEL FOR YEAR ENDED SEPTEMBER 2007

COST OF FUEL FOR YEAR ENDED SEPTEMBER 2007

COST OF FUEL FOR YEAR ENDED SEPTEMBER 2007

COST OF FUEL FOR YEAR ENDED SEPTEMBER 2007

## IMPORTANT INFORMATION ABOUT THE COST OF HOT WATER FOR HOME USE:

### How much hot water does your family use?

Believe it or not, an average family uses 64 gallons of hot water every day for baths, laundry and kitchen, etc, and that's sometimes too much for a typical boiler to produce. But System 2000 makes as much as **eight times more hot water than an electric water heater** and 3 to 4 times more than a typical gas water heater.

And, since **producing hot water represents 1/3 of a typical home's total heating cost**, it's **very** important to make it as efficiently as possible.



Dirty laundry: 18 gallons per load



Hot tub or pool: can be hundreds of gallons

**System 2000 provides abundant hot water at significant savings.**

Because System 2000 is an integrated system,\* with hybrid energy recovery<sup>®</sup> it can produce tremendous amounts of hot water for far less cost than conventional boilers. In fact, System 2000 produces enough hot water to run the dishwasher, the washing machine and several showers all at once.

System 2000 does it by combining three high performance components: a high capacity hot water storage tank, a low mass high efficiency boiler that produces more hot water per hour, and a hybrid energy recovery<sup>®</sup> system to optimize performance and comfort.

\*That means System 2000 does not have a separate water heater. Using Hybrid Energy Recovery<sup>®</sup> technology, it produces all the heat needed to warm your living spaces, plus it simultaneously provides for all your hot water requirements. That's efficiency!



Taking a shower: 12 gallons per shower



The dishes: 16 gallons per load

**System 2000 fuel savings repay your investment, and then provide extra money that you'll have in your pocket year after year . . . after year.**

Depending on your area of the country, System 2000 may be more costly to install than a conventional boiler or heater. But the chart at left shows how the fuel savings you enjoy with System 2000 can **easily** pay for this increase in a short period of time. After that, those annual savings are a cash bonus you'll earn year after year for many years to come!

At the same time, you'll enjoy System 2000 comfort and convenience, and, in addition, features that are far superior to other home heating equipment.

### LOOK HOW MUCH YOU'LL SAVE JUST ON HOT WATER! THIS CHART SHOWS TYPICAL ANNUAL COSTS FOR HEATING DOMESTIC HOT WATER.\*

**System 2000 hot water costs only \$283 - 345 per year!**

**Gas water heater costs \$427 - 522 per year**

**Conventional boiler costs \$419 - 551 per year**

**Electric costs \$744 - 910 per year**

\*FIGURES BASED ON HOMES IN NORTH EASTERN U.S. FOR 12 MONTHS ENDING SEPTEMBER 2007

# A consumer's guide to understanding yellow AFUE (energy guide) ratings

**Don't be misled by yellow AFUE government "efficiency" stickers. They don't accurately indicate how in-efficient a boiler really is.**

Most conventional boilers claim to be "high efficiency" because their AFUE (government) efficiency ratings, shown on yellow labels, are based only on limited testing. However, **AFUE measures only energy wasted from boiler heat that's lost up the chimney.** With short heat transfer passages (some only 16" long, or less) conventional boilers can't absorb all the heat they create before it literally blows up your chimney. AFUE does record this loss. However there are other **more costly** inefficiencies that AFUE simply ignores completely. See the next column.

Old fashioned draft regulators and draft hoods lose a *terrible* amount of energy, but yellow AFUE labels *don't measure that loss.* **System 2000 does not use a draft regulator.**



Here are the severe energy losses that AFUE doesn't measure:

### Jacket loss

Poor insulation on the boiler, usually only 3/4" of fiberglass (and that's only on the boiler jacket) allows heat to escape constantly. This loses a great amount of heat to your garage or basement. AFUE doesn't measure it.

### Idle loss

Conventional boilers are hot at the end of a heat call, and some even continue to run day and night to keep hot water available, even when no one is using hot water. This is "idle loss," a terrible waste of energy. On a typical hi-mass boiler, idle losses are the inevitable result of the need to heat the equivalent of over 1000 pounds of iron, every time the system turns on. AFUE doesn't measure it.

### Draft regulators, draft hoods and room air loss

Draft regulators suck warm air out of your home in order to control chimney draft for the boiler, but AFUE ratings don't measure this loss. **System 2000 uses outside air for combustion and does not have a draft regulator.**

### In addition

AFUE doesn't measure how efficiently your boiler makes hot water for your bath, laundry and faucets, which typically equals 20-30% of your heating costs!<sup>1</sup>

Adding up all the common energy losses listed at left, plus the demands of making hot water, reveals the real efficiency ratings of typical boilers, which are shown in the blue boxes and the chart that you can find on these pages.

**The logical conclusion is: Don't choose a home heating system based on its AFUE rating. Instead, ask about a boiler's real efficiency rating, as shown in the blue boxes below and in the chart at right.**

<sup>1</sup>There are no federally prescribed testing and rating standards for combined appliances." (i.e., appliances that make both heat and hot water). From: U.S. Government AFUE, ANSI/ASHRAE 124-1991.

### ABOUT "DEMAND FIRED" OR SO-CALLED COLD START BOILERS

While boilers with heavily insulated tanks may store plenty of hot water, they also waste significant energy. Here's why: A tremendous amount of energy is still needed to heat up the 6-10 gallons of water and massive amounts of cast iron in conventional boilers. Then, once your hot water needs are met and the boiler shuts off, this heat is wasted. Typically, this will account for about 15-20% of your annual fuel bill. Chart at right shows the inefficiency this process causes.

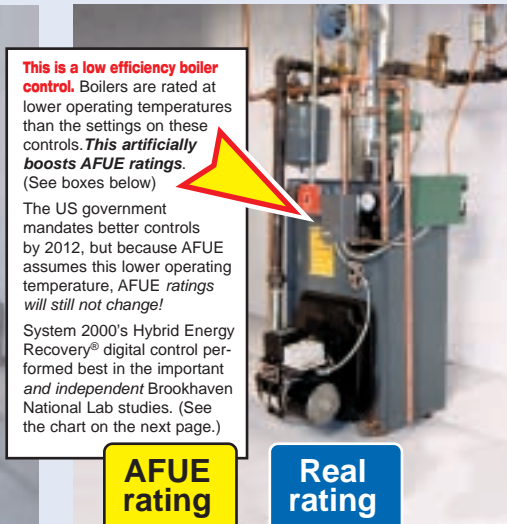
### THREE TYPICAL INEFFICIENT BOILERS:

Conventional gas boiler and water heater.



**AFUE rating = 80%**  
**Real rating = 63%**

Cast iron tankless coil boiler.



**This is a low efficiency boiler control.** Boilers are rated at lower operating temperatures than the settings on these controls. **This artificially boosts AFUE ratings.** (See boxes below)  
The US government mandates better controls by 2012, but because AFUE assumes this lower operating temperature, AFUE ratings will still not change!  
System 2000's Hybrid Energy Recovery® digital control performed best in the important and independent Brookhaven National Lab studies. (See the chart on the next page.)

**AFUE rating = 86%**  
**Real rating = 56%**

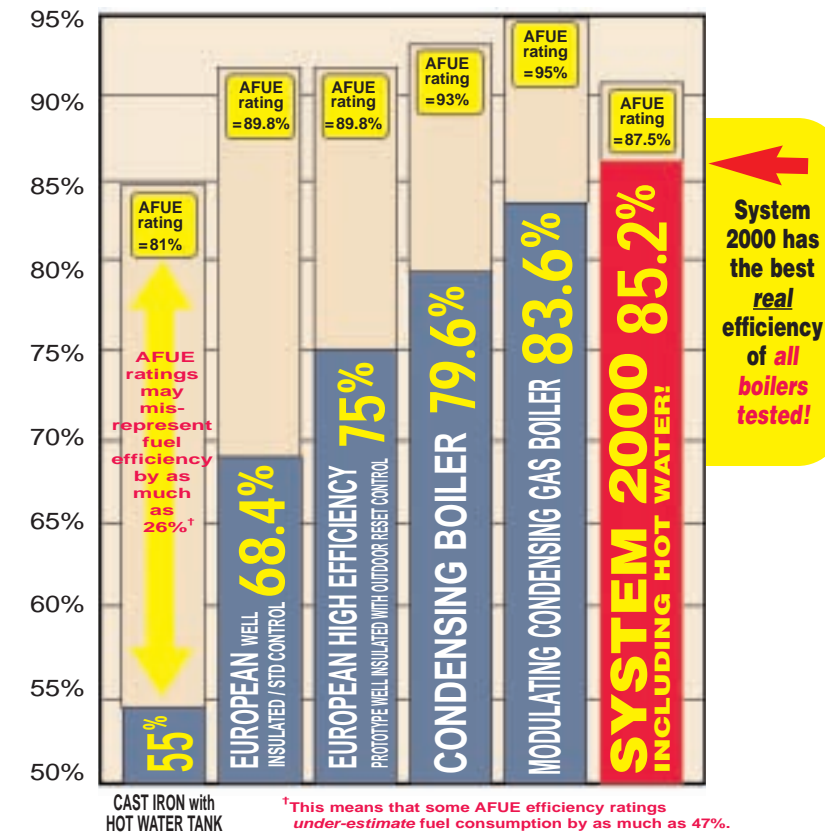
Typical high-mass boiler with indirect water heater.



**AFUE rating = 86%**  
**Real rating = 62%**

Under contract with the United States Department of Energy, Brookhaven National Labs confirms: **U.S. energy guide (AFUE) ratings miss significant areas of energy loss.**

### REAL EFFICIENCIES (THE BNL FINDINGS):<sup>2</sup>



**AFUE rating = 87%**  
**Real rating = 85%**

The REAL efficiency rating for System 2000 is 85%! Compare this to the other real ratings for conventional boilers, shown in the blue boxes and chart on these pages!

**For the best energy cost savings, choose the hybrid heating system, System 2000!**

### Low chimney loss

System 2000 minimizes chimney loss with a unique counterflow design that incorporates over ten feet of heat transfer passage.

### Almost no jacket loss

System 2000 has 2-4" of insulation all around, and is raised 18" off the cold floor.

### Near zero idle loss

System 2000 had the lowest idle loss of all systems tested in the important, independent Brookhaven National Labs study.

Plus, the System 2000 patented spiral boiler holds only 2.5 gallons of water and heats up six times faster than the competition. Combined with our high performance hot water system, System 2000's Hybrid Energy Recovery® captures heat that other boilers simply waste, and virtually eliminates idle loss while meeting all your heat and hot water needs.

### No draft regulator or draft hood loss

System 2000's advanced design does not require draft regulation and uses outside air for combustion.

### THE ELECTRIC HOT WATER ENERGY PIT:

With conventional gas and oil systems, it's possible to make general comparisons on efficiency. However, estimating the efficiency of electric hot water is more complicated because electric power is drastically more expensive than either gas or oil.

For example, a typical electric water heater can legally display an energy guide sticker that states its efficiency rating is 93%. On the surface, this sounds impressive. However, that rating means only that once electricity is connected to the heater, 93% of the electricity is converted to heat. What is not represented in this energy guide rating is this staggering fact: electricity itself is 3 to 5 times more expensive than either oil or gas.

That means electric hot water usually costs 3 to 5 times more than SYSTEM 2000 hot water!

**AFUE rating = 93%**  
**Real rating = 28%**

**The real efficiency of making hot water with electricity is an embarrassing 28%.**

<sup>2</sup>Data and conclusions are drawn from the report "Performance of Integrated Hydronic Heating Systems." Paper and presentation by Brookhaven National Laboratory, Upton, New York, under contract No. DE-ACO2-98CH10886 with the United States Department of Energy by Dr. T. Butcher; and "Chimney Related Energy Losses in Residential Oil-Fired Heating Systems (1990)." Available on request.

System 2000 is ranked the #1 top-rated system by Brookhaven National Laboratory in a study under contract with the the U.S. Department of Energy<sup>1</sup>

## The science behind quiet efficiency!

With Hybrid Energy Recovery,<sup>®</sup> System 2000 produces your home's heat *plus* almost endless hot water! And it runs so efficient and quiet! Here's why:

### High Performance Domestic Hot Water System

- Heavily insulated storage tank provides a ready supply of hot water
- Advanced technology stainless steel heat exchanger captures full boiler output for domestic hot water - recognized worldwide for most effective and efficient heat transfer.
- Integrated design works seamlessly with the Digital Energy Manager to provide energy recovery and maximum efficiency
- Unique stratified storage for improved water quality
- High output provides 210 gallons per hour\*
- Optional tanks for unique water requirements

\*Domestic hot water rating based on EK-1 first hour draw with 70F rise and 40 gallon storage tank. EK-2 model provides up to 350 gallons per hour.

### Digital Energy Manager

- Automatic operation – no need to set or adjust complicated programs
- Comes standard on every System 2000 – not an option like on typical boilers
- Better efficiency and performance than “temperature reset” systems
- Monitors and controls System 2000 for peak heat and hot water efficiency
- Matches energy usage to the exact requirements of your home
- Allows priority for hot water
- Energy Recovery Cycle<sup>®</sup> makes sure no heat is left wasted in the boiler and saves fuel dollars. This cycle, combined with the low mass spiral boiler design, means idle losses are virtually eliminated.
- Hot water plus 4 zones standard (10 and 15 zone options available)

### Unique, Patented Spiral Boiler Design

- 10 feet of energy absorbing flue passages
- Ultra low mass design contains only 2.5 gallons of water
- 1/3 the mass of typical systems for highest efficiency
- No pins or baffles to foul up and reduce efficiency
- Specially formulated steel boiler is a gasketless one-piece construction designed to last the life of your home
- 20 to 50 times the insulation used on conventional boilers
- Special silent burner enclosure makes System 2000 more quiet than a microwave oven - recognized as the quietest oilheat system; also available in ultra quiet gas heat
- Outside combustion air connection - doesn't steal heated air from your home and eliminates drafts
- Durable combustion chamber provides near perfect combustion



<sup>1</sup>Data and conclusions drawn from the report "Performance of Integrated Hydronic Heating Systems." Paper and presentation by Brookhaven National Laboratory, Upton, NY, under contract No. DE-ACO2-98CH10886 with the United States Department of Energy by Dr. T. Butcher. Available on request.

# With System 2000's Hybrid Energy Recovery<sup>®</sup> cycle, no heat energy is left wasted in the boiler.



## HERE'S WHAT HAPPENS WHEN YOU NEED HOT WATER:

As hot water is used, the tank thermostat signals the Digital Manager and the Digital Manager turns on the burner.

Within 90 seconds the domestic circulator is passing water from the storage tank through the stainless steel heat exchanger. This charges the top of the tank with hot water. Combined with the boiler it can provide 210 gallons of hot water per hour.

When the tank is re-heated, the thermostat signals the aquastat which turns off the burner.

The Digital Manager directs the domestic circulator to continue sending cooler water at the bottom of the tank through the heat exchanger. This unique process recovers the heat left in the boiler.

This heat is then stored back in the hot water tank, adding to your existing hot water supply. As a result, it's longer before the tank calls on the boiler for additional hot water – and that conserves your fuel dollars.

The result: **no heat is left wasted in the boiler.**



## HERE'S WHAT HAPPENS WHEN YOU NEED HEAT:

The Digital Manager senses your thermostat(s) requirements, and turns on the burner.

Within 90 seconds the boiler sends heat through each zone valve, into your home.

When your thermostat is satisfied, the Digital Manager turns off the burner.

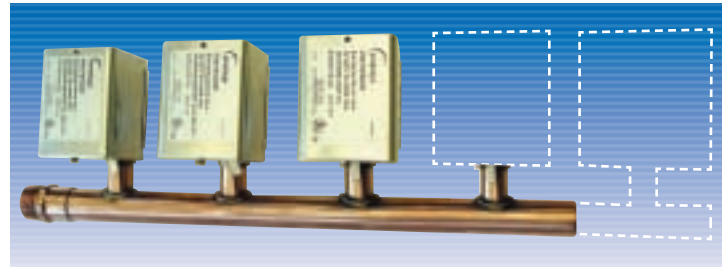
The Digital Manager then starts the unique Hybrid Energy Recovery Cycle<sup>®</sup> that pumps any heat that is remaining in the boiler back into your home. This transfer takes about 20 minutes and guarantees that it will be longer before your thermostat needs to call for more heat.

When the Digital Manager senses another call, the sequence begins again.

The result: **no heat is left wasted in the boiler.**

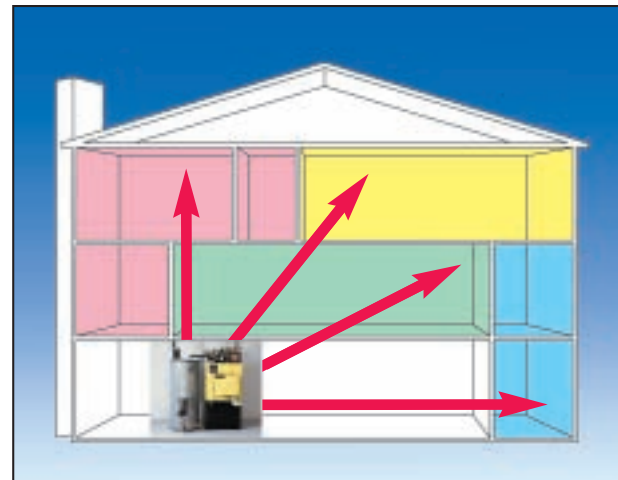


## System 2000 provides sophisticated zoned comfort for year-round enjoyment of every room in your home.



System 2000 is expandable up to 15 zones

The System 2000 Digital Manager controls multiple zones and provides near endless hot water. This flexibility means you can control the energy used to heat unoccupied rooms while living areas stay cozy and comfortable. Zones also can be expanded in the future to accommodate changing life styles or home renovations.



System 2000 provides precise, expandable control to maintain comfort levels in all areas of your home.

## Bonus money saver! Your System 2000 can be installed with or without a chimney.

Many homeowners who plan to save money by converting from expensive electric heat and heat pumps find themselves up against a brick wall: the high cost of chimney construction.

But System 2000's unique combustion chamber, combined with 10 feet of heat transfer passage, means that gases leave the system clean and relatively cool. This allows them to be safely vented directly through-the-wall, even at yard level. No need for costly chimney construction!

For chimney-less installations, System 2000's stainless steel vent works similar to your dryer vent and features a patented air-cooled surface - never hot to the touch.



Through-the-wall venting saves thousands of dollars on the cost of a new chimney, an excellent benefit for new home construction. This also means System 2000 is perfect for electric conversions.



System 2000 can also be easily vented through any existing chimney - perfect for replacing aging oil or gas heating systems.



## There's a versatile System 2000 configuration that's right for you.



System 2000 is perfect for homes fueled by oil, natural gas or propane. There are models specifically designed for the smallest condominium to the largest estate. Choose from heat and hot water, or heat-only models.

In addition, ask your heating representative for details about the System 2000 Stackable™ configurations for closets and tight spaces, the Freedom™ weather-tight outdoor model and swimming pool and spa heaters.

Right above: A choice of high-efficiency hot water storage tank sizes handle the largest hot water requirements. Durable glass-lined or stainless steel models provide high performance operation.

## System 2000 means value for your home and peace of mind for your family.

### Our commitment to quality includes:

*The finest warranty in the industry:*

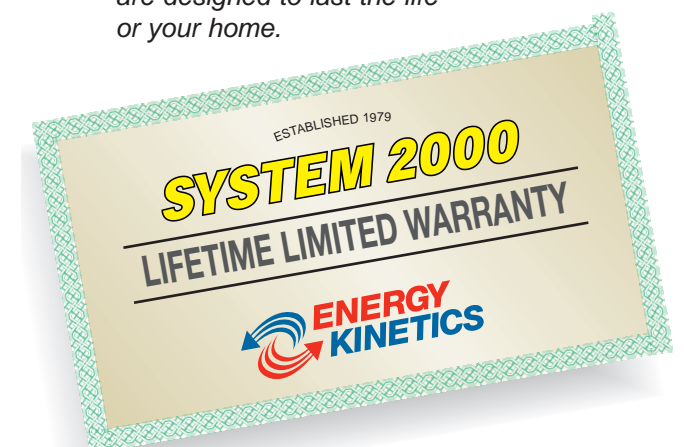
- Lifetime limited warranty on System 2000 pressure vessels
  - Lifetime limited warranty on Digital Energy Managers
  - Lifetime limited warranty on stainless steel tanks
  - 12-Year warranty on standard tanks
  - 3-Year warranty on all standard components
- (See warranties for specific details)

*In addition:*

- Energy Kinetics System 2000 is represented by only the best heating professionals in your area.
- Our factory direct Pro-Training™ programs for installers and technicians mean you'll benefit from the industry's leading technology.
- Tech support includes both telephone service and website assistance and backup.



Your family's comfort is assured because System 2000's high quality and performance are designed to last the life or your home.



## System 2000 delivers the heat!

System 2000 runs on oilheat, natural gas and propane, and is compatible with all heating applications, including:



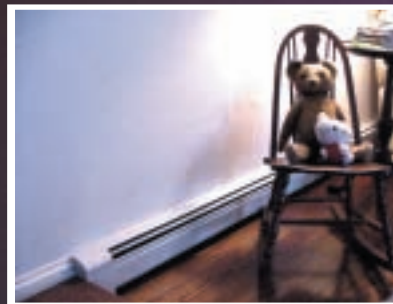
Radiant



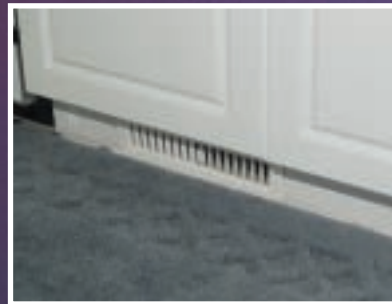
Radiator



Hydro-air and heat pump backup



Baseboard



Toe kick



Pools and spas



Unit heater



Forced air

It's got to be  
**SYSTEM  
2000**<sup>®</sup>

Authorized System 2000 Dealer:



As an ENERGY STAR<sup>®</sup> Partner, Energy Kinetics has determined that this product meets the ENERGY STAR<sup>®</sup> guidelines for energy efficiency. System 2000 is proudly made in the U.S.A.



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