Consumers Digest
OCTOBER 2010

HOME-HEATING GUIDE

HIGH-EFFICIENCY

House Warming

Best Buys in Furnaces, Boilers, Heat Pumps, Fireplaces & Portable Heaters

Whether it's a central unit for your entire house or a portable heater that you can move from room to room, today's newest units are better than ever at warming the cockles of your heart (and other parts) and keeping the heat off your monthly bills.

By James J. Hodl

Unless you're a penguin or a polar bear, the thought of bitter temperatures during the upcoming winter season can make you shiver. But you can mitigate the cold by switching on a central heating unit that's more efficient than ever before and achieve extra toastiness next to a fireplace that delivers better realism along with the heat, or a portable heater.

And, as we enter "flue" season, it's comforting to know that the broad selection of home-heating equipment that is available to warm you won't burn a hole in your wallet.

HEAT CENTER. The primary unit in any home-heating strategy is, obviously, the central system—furnace, boiler or heat pump. The good news is that the top units in all three categories continue to gain in efficiency, which translates into reduced utility bills.

Two years ago (when we last reviewed heating equipment), the highest annual fuel utilization efficiency (AFUE) rating for a gas furnace was 96.7; today models by Nordyne and York top that figure. York achieves an industry-leading AFUE rating of 98.0 for models that are sold under the Coleman, Luxaire and York brands. And nearly every brand that's on the market has at least one model that is in the super-high-efficient range, which means that it has an AFUE rating of 95.0 or above.

The improvement among gas boilers has been more dramatic. In 2008, only 11 boiler brands reached an AFUE rating of 95.0, with a top rating of 96.0. Today, 18 brands hit 95.0 and six beat 96.0. A Heat Transfer model is the new leader at 98.0. (Unfortunately, the main problem that affects oil furnaces and boilers—too much sulfur in the fuel oil—hasn't been solved. So efficiencies remain about where they were 2 years ago and continue to lag those of gas models.)

And heat pumps finally broke through the long-standing efficiency ceiling of 19 SEER (seasonal energy efficiency ratio). Nordyne in 2009 brought to market heat pumps that achieve 22 SEER. (They're sold under the Broan, Frigidaire, Maytag, Nutone, Tappan and Westinghouse brands.)

How? Nordyne brought the same technology that it uses in its super-high-efficiency air conditioners to its heat pumps: It replaced a heat pump's traditional compressor with an inverter-driven compressor that varies its operating speed according to indoor temperature. Energy is saved because, instead of running only full speed or off, the speed varies, so only the amount of electricity that is required to maintain the set temperature is consumed. This is similar to the modulating technology that is used in furnaces and boilers—and it's expensive. Nordyne's heat pumps start at the high end of the price scale—around $6,000.

prime the pump Heat pumps broke through their long-standing efficiency ceiling of 19 SEER.

CLEARING THE AIR. With efficiency in furnaces, boilers and heat pumps just about maxed out, manufacturers are touting new features as a way to stand out from the crowd. For example, the variable-speed blower that is in four Lennox furnace models is programmed to build slowly to full speed as it starts to deliver warmth and then slowly wind down when the furnace cycles off. This process minimizes the cold drafts that some people feel at the end of cycles, Ken Ely of Lennox explains. You'll pay at least $2,700 for a furnace that has this feature.

Meanwhile, manufacturers increasingly are adding LCD display modules to gas and oil boilers. These useful panels not only trim the time that it takes a contractor to install the boiler—and, theoretically, reduce installation cost—but they also display status reports on operation and provide fault codes that will help with service if something goes wrong. You can expect to spend at least $1,700 for a boiler that has this diagnostic/service-alert feature.

And are you ready for solar-powered heating? Systems that add solar panels to power heat pumps and air conditioners have been around for years, but Lennox is attempting to bring these systems out of the hobbyist category with its SunSource Home Energy System, which was introduced in May. Roof-mounted solar panels ($700 per panel) are linked to the compressor of a heat pump (the XP17, and also the new XP21 that is due this fall). On sunny days, Lennox says, the panels generate enough electricity to run not only the heat pump but also other household appliances if they are connected to the home's electrical system. However, depending on the local climate, you might need as many as three panels to power your heat pump, which would make solar power a $2,100 option on top of a roughly $4,000 purchase.

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Best Buys in Furnaces and Boilers

Best Buy Categories
[P]=Premium selection
[M]=Midrange selection
[E]=Economy selection

Best Buys in furnaces and boilers were selected based on efficiency, features, ease of use, ease of maintenance, and the manufacturer's reputation for quality and reliability.

Peak efficiency is rated in AFUE (annual fuel utilization efficiency). The ratings are taken from Department of Energy. Manufacturers might claim better ratings under operation during specific temperatures. Efficiencies can vary from model to model within a series.

Input is measured in MBH (or thousands of Btu per hour). The terms *horizontal*, *counterflow*, *downflow* and *lowboy* relate to a furnace's configuration depending on where it is installed.

All Best Buys are for a series of units, thus a range of prices and inputs.

All Best Buy gas furnaces have a warranty of lifetime on the heat exchanger and 10 years on parts.

All Best Buy boilers prorate the replacement cost of the heat exchanger after a certain period of time. The boiler warranties that are listed cover single-family residences.

Bryant Preferred Plus 90t

Because manufacturers typically do not disclose prices, most MSRPs are based on input from contractors, distributors and installer price books. MSRPs do not include installation.

GAS FURNACES

[P] York Affinity 9/Luxaire Acclimate 9/Coleman Echelon 9

MSRP: $3,985 to $5,425

>> The 9 series is the best furnace that's on the market. Engineers tweaked the design, so this is now the most efficient gas furnace that you can buy. This model's burner modulation system adjusts heat in 1 percent increments based on outdoor temperatures—better than most—which helps to minimize energy to achieve the indoor temperature that you desire.

Features:
* Peak efficiency: 98.0 AFUE
* Input: 60 to 120 MBH

[M] Carrier Performance 93/Bryant Preferred Plus 90t

MSRP: $2,800 to $3,070

>> No other gas furnace that is in this price range can match the Performance 93/Preferred Plus 90t for quality and efficiency. We also like this model's adaptive control, which boosts output heat energy as outdoor air temperatures drop (like outdoor reset), and a slow-opening gas valve that results in fewer on/off cycles and longer life.

Features:
* Peak efficiency: 93.0 AFUE
* Input: 60 to 120 MBH

[E] Concord/Ducane 80G2V

MSRP: $915 to $1,115

>> A combination of features at a bargain-basement price makes the new low-profile 80G2V an excellent value. This model's two-stage gas-control system and variable-speed blower, which manage energy to heat the home evenly, are rare on economy furnaces.

Features:
* Peak efficiency: 80.0 AFUE
* Input: 66 to 110 MBH

OIL FURNACES

[P] Adams AHEO/Dornback HEO

MSRP: $5,896 to $6,159

>> The repeat Best Buy AHEO/HEO stands alone as a high-efficiency oil furnace (an AFUE of 90.0 and above); no other model goes above 87.0 AFUE. This model's pyroceramic combustion chamber heats up more quickly than do models that use other materials. A combustion analysis, which shows that this model was installed properly, is required to activate the warranty; typically this is provided at no cost by the installer. The horizontal **ASHEO/SHEO**, counterflow **ACHEO/CHEO** and lowboy **ALHEO/LHEO** (all $6,086 to $6,352) are also Best Buys.

Features:
* Peak efficiency: 95.0 AFUE
* Input: 50 to 125 MBH
* Warranty: 20-yr. heat exchanger; 5-yr. parts

[M] Thermo Pride OH6

MSRP: $3,280 to $4,675

>> Efficiency and reliability for the price—plus a rare transferrable warranty—is what makes the OH6 a three-time repeat Best Buy selection. An eight-sided heat exchanger makes this model more effective than most in transferring heat into living areas. The **OD6** ($3,195 to $4,455), which comes in horizontal and downflow configurations, and the **OH8** ($3,480 to $4,895), which ranges from 119 MBH to 156 MBH, are also Best Buys.

Thermo Pride OH6

Features:
* Peak efficiency: 86.4 AFUE
* Input: 70 to 106 MBH
* Warranty: Lifetime heat exchanger; 10-yr. parts

[E] Rheem Classic ROCA/Ruud Achiever ROCA

MSRP: $1,700 to $2,400

>> The ROCA delivers the most efficiency of any oil furnace that is in this price range, and it lives up to Rheem's reputation for quality. We like how you can choose between three types of branded burners on this model to match your method of exhausting gases; most others give you only two choices. The lowboy **ROLA** series ($1,700 to $2,550) is also a Best Buy.

Features:
* Peak efficiency: 85.9 AFUE
* Input: 84 to 175 MBH
* Warranty: Lifetime heat exchanger; 5-yr. parts

For more information on the above Best Buys, contact the manufacturers directly.

York Affinity 9

More Efficiency? Wait and See

Federal regulations require all gas furnaces to meet a minimum AFUE (annual fuel utilization efficiency) rating of 78.0. Two proposals would require greater efficiencies by 2013. (Gas furnaces already are required to improve to an AFUE rating of 80.0 by 2015; most are already there.)

One proposal that was made by a few environmental groups to require gas furnaces to meet a minimum 86.0 AFUE rating would appear to be dead on arrival when you consider how negatively furnace manufacturers typically respond to attempts to get them to increase the efficiency of their products even minimally. But another proposal that was agreed on by Air-Conditioning, Heating and Refrigeration Institute (AHRI), seven energy-efficiency trade groups and several manufacturers, stands a better chance of being approved. This proposal would create a two-tier system that would make 80.0 the minimum AFUE rating for furnaces that are sold in southern states and 90.0 the minimum for northern states. (It also would raise everywhere the minimum on oil furnaces to 83.0 from 82.0 and on heat pumps to 14 SEER [seasonal energy efficiency rating] from 13.)

Although the proposal makes sense, because more fuel is burned in a typical heating season in the north, we wonder whether it would just give manufacturers an excuse to pull low-cost models from the market—leaving behind more-expensive high-efficiency furnaces that already exist—rather than improve the efficiency of more of their furnaces.

AHRI claims that the proposal, which Environmental Protection Agency must approve before the new standards take effect, would save $13 billion worth of energy by 2030. We did the math, and that comes to about $110 per household, or $6.11 per year. AHRI didn't say how much in revenues the proposals would generate for manufacturers.