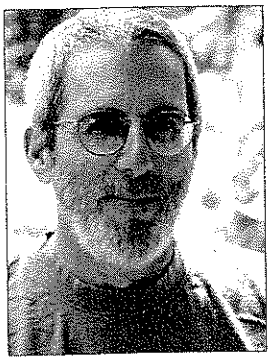
# Energy Efficient Mortgages



APRIL WISE PHOTOS

Steve Mann is a HERS rater, Green Point rater, LEED AP, serial remodeler, and long-time software engineer.

Of all the topics I've written about for *Home Energy*, energy-efficient mortgages (EEMs) have generated the most questions. There seems to be a lack of understanding about this Federal Housing Administration (FHA) program among home buyers, lenders, and real estate agents. For home buyers or homeowners, it's a great way to finance energy-efficient upgrades without (in theory) paying anything out of pocket. In this article I cover EEM basics and explain how HERS raters and home performance contractors fit into the picture.

## *The FHA*

The FHA is the department of the U.S. government that insures mortgages (contrary to popular belief, it doesn't lend money). It guarantees the lender that if the homeowner defaults on the mortgage, the federal government will step in and make good the default. It does this by reviewing the loan package before the close of escrow to make sure that the package conforms to FHA guidelines.

You might think that FHA guidelines would be remarkably strict, but that's not the case. Overall, the qualifying requirements are quite reasonable compared to those of other loan programs. You can get a FHA-insured mortgage with a down payment of as little as 3%. You can also have less-than-excellent credit. However, you have to be able to document your income. Your total housing cost, including taxes and insurance, cannot exceed 29% of your total income, and your total debt, including credit cards, auto loans, and so on, cannot exceed 41% of your income. You can use FHA loans to purchase one- to four-unit properties, condominiums, and manufactured homes.

Currently, approximately five million new mortgages are written in the United States every year, down from a high of seven million in 2005. Only 200,000 of those mortgages were FHA insured in 2007. There are two reasons why that number is so low. The first is that, until the recent mortgage crisis, there were quite a few sources for subprime mortgages. It was possible to get a very flexible loan without adequately documenting your income. Lots of folks who shouldn't have had mortgages got them.

Second, until recently, the FHA had fairly low limits on the size of the mortgages they would insure. Higher-priced real estate markets really couldn't take advantage of the program. Fortunately, those limits were recently revised to reflect current market conditions. As in the past, the limit amounts vary by region. 2008 FHA statistics reflect the elimination of subprime lenders and the increase in FHA loan limits—as of November 2008 FHA-insured loans had more than doubled to 400,000 units. That number is expected to increase in 2009.

## *Qualifying for an EEM*

If you qualify for a FHA mortgage, you automatically qualify for an FHA EEM, with no additional requirements. (Fannie Mae, the Veteran's Administration and other groups also offer EEMs, with different funding limits, regulations, and so on, but as of this writing the FHA program is the most popular.) The FHA EEM lets you borrow more money for energy-efficient improvements. Typical upgrades include increasing insulation levels, sealing ducts and the building envelope, upgrading mechanical equipment and lighting, and replacing windows. You cannot use the EEM to replace inefficient appliances.

The amount you can borrow with an FHA EEM is limited to the lesser of 5% of the appraised value of the home or $8,000, with a minimum of $4,000. This money is rolled into the mortgage. The assumption is that the increase in the monthly payment will be offset by a reduction in the utility bills. For $8,000, it's possible to replace a furnace, upgrade windows, increase insulation levels, and so on.

You have to have the house analyzed by a RESNET-certified HERS rater (see Figure 1). The rater enters the house's characteristics into an approved software application, such as EnergyPro

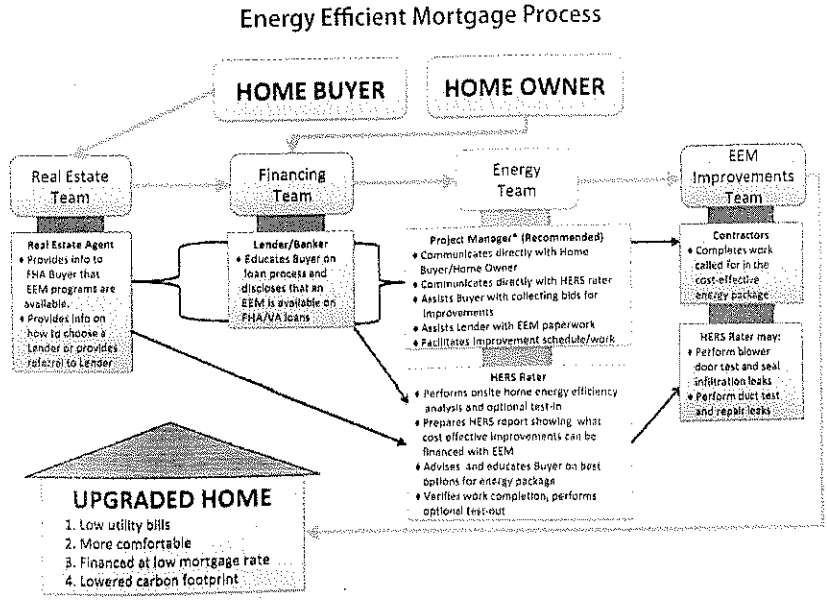



Figure 1.The FHA EEM lets you borrow more money for energy-efficient improvements. Typical upgrades include increasing insulation levels, sealing ducts and the building envelope, upgrading mechanical equipment and lighting, and replacing windows.

(see "Fixing California's Existing Homes," *HE* Nov/Dec '08, p. 16) or REM/Rate (see "REM/Rate 12.5—A Versatile Energy Application," *HE* Sept/Oct '08, p. 10). The rater adds recommendations about energy-efficient improvements to the software. REM/Rate lets raters specify any improvements they think are appropriate. EnergyPro restricts them to a fixed set of improvements. The rater then generates a report showing the improvements, their cost, the predicted amount of energy that they will save, and the predicted reduction in energy-related expenses. If the improvements pay for themselves during their useful lifetime, you can add them to the EEM.

**CHEERS Rating Report** — **Prepared for: California Consumer**

| CHEERS Certificate ID: | Rater: | Rater ID: | Date of Rating: |
|---|---|---|---|
| EHDRAFT | | | 10/14/2008 |

Site Address: 123 Energy Hog Road, CA City, CA 12345

Customer: California Consumer, 123 Living Green Blvd., CA City, CA 12345

Owner: CA Home Seller, 456 Lives Out of Town Road, CA City, CA 12345

**About Your Home**

| | |
|---|---|
| Program: | CHEERS Rating |
| Interest Rate: | 6.50% |
| California Climate Zone: | CZ12 |
| Year Built: | 1980 |
| Electric Utility: | Electric SNUD RSG S |
| Gas Utility: | Gas PG&E S |
| Cond. Floor Area: | 1847 |
| Volume: | 14776 |
| Front Orientation: | 0 |
| Stories: | 1 |
| Type: | SingleFamily |

Energy use and measure savings calculated using EnergyPro (Version: 4.411).
Data imported from transfer file: 'CA Consumer Oct 08.dat'

| Recommended Improvements | Useful Life | Annual Savings | Lifecycle Savings / Present Value | Estimated Cost to Install |
|---|---|---|---|---|
| Upgrade Roof Insulation | 30.0 | $231 | $3,019 | $823 |
| Seal HVAC Ducts | 30.0 | $175 | $2,286 | $650 |
| Reduce Building Leakage | 30.0 | $25 | $331 | $350 |
| Upgrade HVAC System | 30.0 | $447 | $5,838 | $6,875 |
| Upgrade Lighting | 7.0 | $38 | $208 | $200 |
| | Totals: | $916 | $11,682 | $8,898 |

| Annual Operating Costs | Existing | Improved |
|---|---|---|
| Heating | $3310.03 | $2584.85 |
| Cooling | $378.53 | $237.22 |
| Water Heating | $325.42 | $322.86 |
| All Other Uses | $177.02 | $129.56 |
| Total | $4191.00 | $3274.49 |

| | |
|---|---|
| Existing HERS Score: | 402.6 |
| HERS Score with Improvements: | 313.7 |
| Percentage Improvement: | 22.1% |

A ZERO energy home has a HERS score of "0". A home built to the 2005 California Title 24 Energy Code has a HERS score of 100.

Disclaimer: The estimated operating costs shown in this report are dependent upon many factors. The construction and conservation features of the home clearly is important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating cost. The estimates provided in this report are based on typical conditions, your actual usage will vary.

Figure 2. The homeowner would have to select a subset of those improvements that is less than the EEM ceiling for the property, either 5% of the appraised value, or $8,000.

The HERS report and the homeowner-selected set of improvements become part of the escrow process. Once escrow closes, the homeowner or a qualified project manager (typically a general contractor) hires licensed contractors to complete the upgrades. They are paid with money held back in escrow. When the work is completed, the HERS rater inspects the upgrades to make sure they are done correctly. The final inspection may involve blower door and duct testing to verify improvements. Note that the HERS rater may be able to do some of the improvements, depending on the certification and conflict-of-interest guidelines of the HERS provider and the local permitting authorities.

Figure 2 shows a sample EEM report. The full set of recommended improvements costs almost $8,900, with a lifetime savings of over $11,000. The homeowner would have to select a subset of those improvements that is less than the EEM ceiling for the property, either 5% of the appraised value, or $8,000, as I explained above. Note that each individual improvement does not have to realize a lifetime savings; only the combined package of improvements has to do so.

Typically, EEMs are used to purchase or refinance existing homes. You can also use an EEM to purchase a new, already energy-efficient house. In those circumstances, the only real benefit is that the qualification ratios are stretched from 29% and 41% to 31% and 43%, letting you qualify for a larger mortgage. There are also EEM programs, with higher limits and different requirements, for renovating properties.

## The Obstacles

According to David McEvoy, manager of mortgage-related products at mortgage-dataweb.com, approximately 400,000 FHA-insured mortgages were written as of the end of October 2008. Although I am unable confirm exact numbers, interviews with industry participants confirm that a very small percentage of those mortgages were EEMs. Wells Fargo Bank, one of the largest FHA lenders, originated more than 50,000 FHA mortgages in 2008. Of those, approximately 500 were for EEMs for new homes. The FHA provided me with numbers suggesting that only about 1,100 EEMS were written as of October 2008. Other sources suggest that the FHA cannot accurately track the number of EEMS being written; if so, the 1,100 figure is too low. Regardless of the accuracy of these various statistics, they are all surprisingly small numbers for a program that improves the energy efficiency of new and existing housing stock at no additional out-of-pocket cost (and in fact at reduced long-term cost) to the home buyer.

According to Jana Maddux, Existing Homes Program Manager at California Home Energy Efficiency Rating Services (CHEERS), the biggest reason home buyers don't take advantage of EEMs is that they just don't know about them. Although FHA-certified lenders are required to give mortgage applicants information about EEMs, it gets lost in the stack of paperwork accompanying a mortgage transaction. In addition, lenders and real estate agents are remarkably uninformed about EEMs. According to Maddux, "there needs to be a paradigm shift in the real estate market" before EEMs become more popular. That shift would involve educating everyone in the transaction—home buyers, real estate brokers, lenders, and perhaps even inspectors. All the real estate professionals I talked to for this article agreed that lack of easily digestible information about EEMs is the biggest problem.

Even with clear, widespread information, an EEM can be a tough sell. Elise Groves, senior mortgage advisor at Creekside Mortgage in Santa Rosa, California, says that she tells all her FHA clients about EEMs as part of the disclosure process. Most are not interested, for a variety of reasons. In the mild California climate, many purchasers don't see any real benefit to a more energy-efficient home. The dollar savings just aren't that compelling, and the green component just isn't that important. Additionally, in the

## software

current economic climate, most lenders are operating in survival mode. Dealing with one more item that doesn't earn them extra compensation just isn't worth the hassle.

Another problem, cited by real estate brokers, is that the EEM inspection is another cost for home buyers to deal with during escrow, on top of the typical home inspection, termite inspection, and other regional requirements. In fact, that shouldn't be a barrier—the fees for the initial HERS inspection and rating, along with the final inspection, can be included as one of the EEM improvements, as long as the costs are reasonable. Unfortunately, home buyers tend to think about what's coming out of their pocket today, not the savings they will realize over the long term. For a typical EEM, the long-term savings can be substantial, even if you pretend that fuel prices will never increase.

A final negative that is often mentioned is that the HERS report only predicts utility savings. There is no research or follow-up to confirm that the real savings actually match the estimated savings. Homeowners could end up paying more per month with an EEM than they would have paid otherwise, even with the energy improvements. Why spend hard-earned money today for the promise of savings? Until the FHA decides that it's important to follow up after the purchase to confirm the savings, it will be tough to counter this argument.

In fact, some lenders are starting to do this. Stuart Tyrie, head of Wells Fargo's National Builder Division, says that Wells is starting to track post sale energy savings. He claims this information is critical in order to really make people understand the value of an EEM. More importantly, lenders and mortgage insurers need to factor into their pricing strategies the fact that energy-efficient homes carry less risk than conventional homes. Once that happens, EEMs will become more popular.

There are quite a few obstacles to the widespread adoption of energy-efficient mortgages. The number of EEMs originated each year, compared to the total number of mortgages written, is proof of those obstacles. Unfortunately, we live in an era of rising fuel prices, global warming, and peak oil. Existing residential buildings are responsible for a large part of U.S. energy consumption and greenhouse gas admissions. EEMs are one vehicle for improving the energy efficiency of those homes. Hopefully, lenders, real estate professionals, and homeowners will become better informed about EEMs and start taking advantage of the program whenever they purchase or refinance a home.

### For more information:

Contact the author at steve@greenmann.com.

To learn more about EEMs, go to www.fha.gov.

To learn more about EnergyPro, go to www.energysoft.com.

For more about REM/Rate, go to www.archenergy.com.

For statistical information about the mortgage market, go to www.mortgagedataweb.com.

To learn more about the CHEERS Existing Homes program, go to www.cheers.org.