
Parkside Energy Audit

A Recommendation
Report for the
Parkside Housing
Coalition Board of
Directors

Robin Kinsella

Parkside Energy Audit

Summary

This report summarizes a plan to reduce utility bills for Parkside residents. The key to this plan is a process known as an energy audit.

Expert Advice

At its spring meeting, the board of directors of Parkside Housing Coalition asked me to propose a plan to reduce utility bills for Parkside residents by at least 10%. To make sure I proposed the most effective plan possible, I decided to seek the advice of experts. Fortunately, one of the area's top experts in energy efficiency, Tomas Carson, president of Energy Experts Consulting, LLC, offered the services of his staff pro bono. Thanks to his offer, I was able to meet several times with the following consultants:

Tandra J. Melleray	Associate Engineer
Susan Tiu	Senior Engineer
Peter Saravaggio	Community Liaison

Our conversation focused on ways to reduce utility bills for Parkside residents. Under their guidance, I also studied information obtained from the League of Urban Housing Professionals and the Illinois Utility Taskforce. This research suggests that our first step is to conduct energy audits of all our properties.

What is an Energy Audit?

An energy audit is an analysis of a building's energy efficiency. With the results of an energy audit in hand, the property owner can make physical improvements designed to improve the building's energy efficiency. A simple, low-budget energy audit might consist of walking through a building and identifying sources of cold drafts. On the other end of the scale are comprehensive audits that entail an exhaustive inspection of the site, long-term metering of energy consuming systems, in-depth interviews with the facility manager, and a study of utility bills ranging over 36 months or more.

A comprehensive audit, which is typically performed by an energy consulting company, is only cost-effective for corporations that need to maintain a large physical plant. Most homeowners opt for a do-it-yourself approach, checking for obvious air leaks along baseboards, through attics, and fireplace dampers. However, a professional energy audit, conducted by a residential energy auditor, can result in far more savings over the long term. The cost of auditing a single home (somewhere between \$400 and \$700) is usually earned back in utility savings in two years or less.¹ Studies show that a residential energy audit can result in a 25% reduction in utility bills for the average household.²

¹ While costs varies by auditor, the price of an audit is usually based on the home's square footage.

² For more information, see "A Consumer's Guide to Energy," available at www.course.com/consumer/energy. This helpful Web site is maintained by Course Energy Consultants.

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Final Recommendation

I recommend hiring a professional energy auditor to conduct residential audits of all buildings owned by the Parkside Housing Coalition. The engineers at Energy Experts Consulting, LLC, suggest that we obtain bids from five energy audit firms in the Evanston area. Ideally, we would accept a bid and complete the audit process by mid-spring. That would leave us time to evaluate the auditor's list of suggested physical improvements and seek funding for the most crucial improvements before winter.

A professional energy audit begins with a detailed inspection of the site, including all energy-consuming systems. An audit also involves these two important tests:

- **Blower door test:** This test helps the auditor determine a building's air filtration rate—in other words, a building's air tightness. A powerful fan is mounted on an exterior door frame, with all other doors and windows closed. As the fan pulls air out of the building, the internal air pressure lowers. The higher pressure external air is then forced into gaps and cracks in the building. The auditor then has several means of detecting this air flowing into the building.
- **Thermographic scan:** In this test the auditor creates an infrared image (either video or still) of a building. Any thermal leaks are clearly visible in the infrared image. A thermographic scan is often used in conjunction with a blower door test.

Paying for the Energy Audit

Energy Experts Consulting, LLC estimates the total cost of the audit at approximately \$5000. At least 50% of the cost of a professional energy audit will be reimbursed to us through a grant provided by TriState Light and Power. Several government and private agencies also offer partial funding for energy audits conducted by nonprofit organizations like the Parkside Housing Coalition. We estimate that we would ultimately be responsible for less than \$750 of the audit fee, and that amount can be covered by our facility improvement fund.

Budgeting for Repairs and Upgrades

It's likely that many of the repairs suggested by the energy audit will involve sealing gaps in plumbing, siding, door and window frames, and attic hatches. The cost associated with these improvements will be relatively small, involving purchases of weather stripping and caulk. The energy auditor will probably recommend upgrading some of the older furnaces and water heaters. The cost of these improvements will of course be significant, but will immediately result in lower utility bills this winter.

The staff of Energy Experts Consulting, LLC provided some estimates of probable expenditures resulting from the energy audit. These figures are presented in the table on the following page.

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Probable Expenditures

Item	Labor Costs	Material Costs
High-efficiency furnaces	\$3,000 to \$4,500	\$10,000
High-efficiency water heaters	\$2,000 to \$3,000	\$8,500
Weather stripping and Insulation	\$1,500	\$350

