

FEC® POWER

Source

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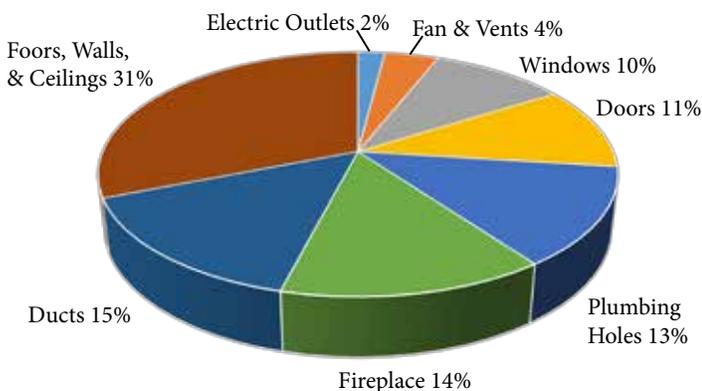


energy efficiency facts | LOCATING & SEALING AIR LEAKS

According to the Environmental Protection Agency, 25 to 40 percent of the energy used for heating and cooling a typical home is lost due to air leakage. Warm air leaking into your home during the summer and out of your home during the winter can waste a lot of energy dollars. That's why tightening up your home is the first step you should take in cutting your energy costs. A modest investment in time and effort can pay real dividends when it comes to reducing energy costs. Experts say a \$25 investment in caulking and weather-stripping could result in hundreds of dollars of energy savings every year.

How does air escape? Air leaks in and out of your home through every hole, nook, and cranny. Common leakage sites include: plumbing holes through walls, floors and ceilings, around chimneys, fireplace dampers, attic access hatches, recessed lights and fans, wiring holes, missing plaster, electrical outlets and switches, moldings around windows, doors and baseboards, and dropped ceilings above bathtubs and kitchen cabinets (see figure 1).

Typical Air Leakage Locations



Source: U.S. Department of Energy, *Energy Savers Guide*

Getting Started

Repair all obvious sources of air leakage first, such as broken windows and holes where air can enter through the ceiling, walls, or floor. Check anywhere building materials join and look for daylight that is visible through the cracks. After these have been properly sealed, you will be ready to tighten up other less obvious air leakage areas.

Caulking vs. Weather-stripping

Caulking is used between non-moving parts where the gap is less than 1/2 inch wide (e.g. between window frame and wall). Apply caulk on a clean dry surface after removing any old caulk and paint – the best time to caulk is during dry weather when the temperature is above 45 degrees. Weather-stripping comes in cleverly designed strips of felt, rubber, metal, or plastic that fills the spaces around doors, windows, and attic hatches – It compresses and seals when they are shut. There are a variety of weather-stripping materials available from your local hardware store.

No Cost

- Identify and prioritize where leakage might be taking place – air leakage locations are not always obvious and easy to find (see figure 1). Prioritize your air sealing strategy by identifying the biggest leads first. On a windy day, locate leaks by running your hands near those leakage sites mentioned in figure 1.
- Lock your windows to make sure they are shut. Locking a window helps create an air-tight seal.
- Keep the fireplace damper closed when the fireplace is not in use. Even when the damper is closed it is still

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Manager's Message...*Lance Adkins, GM*

Construction Crews Have A Full-Plate This Summer

Across Farmers' Electric's (FEC) service area line-crews and contractors are hard at work. Between outage response and repairs due to storm damage, FEC crews are busy building line and extending service to new member loads, as well as performing routine maintenance on the electric system. In addition, we have a contract crew continuing with pole inspections in the San Jon area and another contract crew working with pole replacements identified in the inspection process. Beginning in early July, a third contract crew will begin a special project in the Clovis area to accommodate routing of a new transmission line being developed by Pattern Energy in conjunction with the new wind farm they are building in the Grady/Broadview area.

While FEC line crews perform line inspection driving along lines in their service areas, FEC has also utilized a third-party pole inspection company for a number of years. Our contract crew is able to provide a comprehensive inspection of individual pole integrity for conditions that are not readily apparent, such as pole-rot below ground. Fortunately, given our dry climate, pole-rot and insect damage is rare. Most of the issues we find are damage from storms, lightning, mechanical damage from something striking the pole, and in some areas of the system, heavy damage from woodpecker activity.

*Pole Testing*

Apparently, a utility pole is the preferred place for a woodpecker to build their nesting cavity. Last year FEC crews and contract crews replaced roughly 1,400 poles identified in the inspection process. At a cost averaging \$1,500 per pole for materials, transportation, and labor; that equates to just over \$2 million!

With FEC celebrating our 78th year in operation, we can expect to spend an increasing portion of our budget on inspection, maintenance, and replacement of aging infrastructure. While expensive, this work is necessary to minimize outages and operate the electric system in a safe manner. In fact, one of our area foremen stated that he felt our pole inspection and replacement efforts reduced the impact of winter storm Goliath in his service area!

Most folks are aware of the wind farm project under development in the Grady/Broadview area. Pattern Renewables LP is developing three projects with a combined nameplate generating capacity in excess of 500 megawatts. For comparison, the peak summer load on the FEC system is around 80 megawatts. Even by "big deal" standards, this is a really "big deal". Energy produced by the

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projects is contracted for sale out west. To interconnect the projects to existing transmission facilities capable of reaching markets in the west, Pattern is also building roughly thirty miles of high-voltage transmission line. Much of the right-of-way (ROW) for the new transmission line is adjacent to or over portions of FEC's distribution lines.

In order to facilitate their acquisition of ROW easements from private landowners Pattern personnel spent a great deal of time on the ground talking with landowners. Pattern also met with FEC on a number of occasions and Pattern agreed to pay the cost to bury approximately two miles of FEC distribution line and service infrastructure serving a number of members along the route. We expect this work to take a minimum of two months to complete. Engineering design for the buried lines took into account the rural nature of the area and potential for future development. Underground distribution line is at least four-times more expensive than overhead to construct, is more difficult and costly to tap to serve additional consumers, and can be more challenging to troubleshoot and repair when problems arise.

Indeed, it sure looks to be a long, hot and busy summer!

Until Next Time,



Summer Sizzler!

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Ask The Energy Guys

Q. Hey Energy Guys, what's the difference between Net Zero and Off Grid?

A zero-energy home, also known as a net zero home, is a home with zero net energy consumption, meaning the total amount of energy used by the building on an ANNUAL BASIS is roughly equal to the amount of renewable energy created on the site. They do, at times, consume non-renewable energy and produce greenhouse gases, but at other times reduce energy consumption and greenhouse gas production elsewhere by the same amount. Most zero net energy homes get half or more of their energy from the grid, and return the same amount at other times. Again, on an annual basis.

Off-the-grid is a system and lifestyle designed to help people function without the support of remote infrastructure, such as an electrical grid. Off-grid electrification is an approach to access electricity used in countries and areas with little access to electricity, due to scattered or distant population. The



term off-the-grid (OTG) can refer to living in a self-sufficient manner without reliance on one or more

public utilities. People who adopt this lifestyle are called *off-gridders*. OTG homes are autonomous; they do not rely on municipal water supply, sewer, natural gas, electrical power grid, or similar utility services. A true OTG house is able to operate completely independently of all traditional public utility services. OTG homes are often much smaller than most homes and at times have no electricity, since they have no connection to power lines and the electric grid. Hope that helps!

LEAKS from PAGE 1

leaking air and taking your money up the chimney. In a well insulated home, an open damper can raise heating and cooling energy consumption by 30 percent. An inadequately sealed fireplace is one of the worst sources of air leakage in the home. According to the Department of Energy, sealing and weather-stripping the fireplace in a typical home can reduce air leakage by 14 percent or more. If you're not using your fireplace, seal it up.

Low Cost

- **Window putty** (glazing compound) is used to seal a loose windowpane.
- **Select the best product** to do the job. Ask your local hardware store attendant for the best sealing product for your project. Discuss the location, surface type, size of leak, etc.
- **Seal the leaks.** The best and most affective place to seal a home is on the inside. This not only prevents air movement, it also prevents moisture from accumulating in the wall and ceiling cavities.
- **Caulk the leaks in your ceiling.** Typical insulation does not stop air leakage. When you're up in the attic, look for dirty spots in the insulation. This often indicates a hole where air leaks into and out of your house. Caulk areas where air might escape from such places as ceiling light fixtures, wiring and plumbing holes in the kitchen and bath, electrical junction boxes, and recessed light fixtures.
- A **foam backer rod** is used to fill large or deep cracks; then this is covered and sealed with caulk.
- **Rope caulk** can be used to air seal many leaky areas around the home – especially windows. This inexpen-

sive material is very easy to apply and later, if you want to open the window, it's easy to remove. Note: always designate one window in each room as the fire escape and make sure that it is operable.

- **An attic hatch or pull-down stairway** in the heated and cooled part of your home needs to be weather-stripped and insulated.
- **Electrical outlet cover gaskets** reduce air leakage through electrical outlets. Although the savings are small (about two percent of heating and cooling costs) the cost is also low and it is an easy do-it-yourself project.
- **Window pulley seals** are inexpensive and easy to install. Many older double-hung windows have a rope and weight system to make it easier to raise and lower the window. The peel-and-stick pulley seals stops air leakage at this location while allowing the window to continue to function.

Investment

- **The duct system** in a typical home loses about 20 percent of the air that moves through it due to leaks and poorly sealed connections. This results in higher utility bills and an uncomfortable home. Observe the condition of your ducts; particularly how they are sealed; if uninsulated, check for gaps or air escaping at the joints. If the ducts are insulated, make sure the insulation is vapor sealed and securely taped. Consult a duct-sealing contractor and make sure that mastic or UL-approved duct sealing tape is being used (common "duct tape" does not hold up on ducts and should not be used). Also, ensure that the ducts are insulated with R-5 duct insulation and carefully vapor sealed.

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