Energy problems in small apartment buildings

FACT SHEET

CHANGE FOR THE BETTER WITH ENERGY STAR

APARTMENT & CONDO EFFICIENCY SERVICES

ENERGY STAR PRODUCTS

HOME PERFORMANCE WITH ENERGY STAR

WISCONSIN ENERGY STAR HOMES

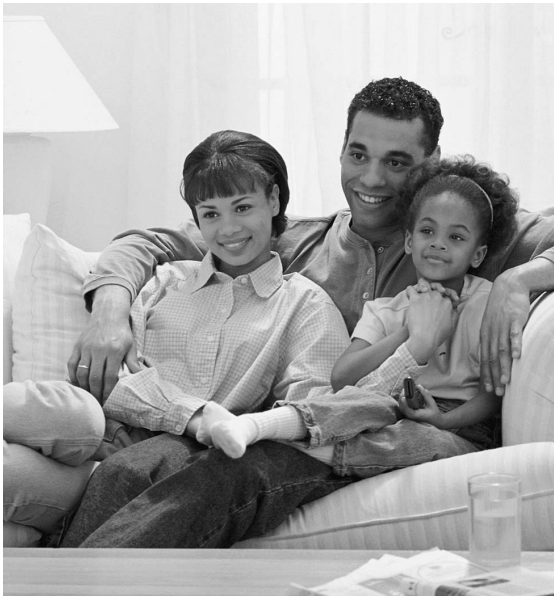
EFFICIENT HEATING & COOLING

For more information call 800.762.7077 or visit focusonenergy.com

Uneven heating and drafts, window condensation, complaints about odors and burned out lamps—these are common problems in four unit to eight unit apartment buildings. And they are all energy related. By fixing these problems you can cut your energy bills, boost profits and keep rent competitive. Over the long run the repairs may cost you nothing at all—the energy and maintenance savings will pay the bill.

To learn more about solving energy related problems in your buildings, contact Focus on Energy at **800.762.7077** or visit **focusonenergy.com**. Our staff can help you identify problem areas in your apartments and provide information and professional assistance to make energy efficiency upgrades easy.

Here are several common problems you can solve **permanently** by taking a smart, energy related approach.



HIGH LIGHTING COSTS

PROBLEM

High lighting costs in common areas. Lots of maintenance calls for burned out lamps.

SOLUTION

Install long-lasting, ENERGY STAR® qualified lighting.

Identify areas that are lit 24 hours a day and replace incandescent lamps with fluorescent lamps. Lights in hallways and stairs are prime candidates. ENERGY STAR qualified fluorescent lights use 75 percent less energy than incandescents and last up to ten times longer, reducing labor and bulb replacement costs. Use compact, screw-in type bulbs or T-8 tubes.

Install occupancy sensors. Depending on code requirements, you may be able to install motion-activated switches in areas that aren't frequently occupied, such as storage areas or laundry rooms. (Don't use occupancy sensors in hallways and stairwells; it violates building codes.)

Use LED exit signs. ENERGY STAR qualified exit signs that use light emitting diodes (LED) are much more energy efficient than fluorescent or incandescent exit signs. And LEDs last nearly 25 times longer than fluorescents and 50 times longer than incandescent signs. It's worth switching for the maintenance savings alone. Plus, you avoid the hassle of getting citations from the local fire inspector for burned out exit signs.

CUTTING ENERGY AND MAINTENANCE COSTS WITH LED EXIT SIGNS

EXIT SIGN	WATTAGE	COST PER YEAR*	EXPECTED LIFETIME
LED	3 W	$4	25 years
Fluorescent	18 W	$13	1 year
Incandescent	30 W	$21	6 months

*FIGURED AT 8 CENTS PER KILOWATT-HOUR

To learn more about saving money with energy efficient lighting, contact Focus on Energy at 800.762.7077 or focusonenergy.com.

focus on energy℠
The power is within you.

ICE DAMS

PROBLEM

Excessive ice build-up ("ice dams") on the edges of sloped roofs. Water damage in upper story apartments, especially on ceilings and walls.

SOLUTION

Air seal and insulate the attic.

Ice dams are caused by warm air leaking into the attic. Warm air leaking from apartments or hallways warms the roof and melts snow. The melted water runs down to the cold roof edge and freezes, forming an ice "dam." Additional melt water builds up behind the ice dam, flows back up under shingles into the attic and down through insulation, ceilings and walls.

Adding attic ventilation or replacing shingles will not prevent ice dams. The way to prevent ice dams is to keep the roof cold by stopping warm air from leaking into the attic.

To prevent ice dams, take the following three steps, in order:

1. Seal air leaks between the ceiling and attic. These air leaks are called "attic bypasses." Sealing attic bypasses is the most important step to take. Insulation alone will not stop these air leaks. Common bypasses include anything that penetrates or opens into the attic, including:

- plumbing vent stacks
- heating ducts
- fan housings and ducts
- chimneys
- attic entryways
- shared walls
- recessed light fixtures
- electrical wiring

2. Ensure that exhaust fans vent warm air from bathrooms and kitchens to the outside and not into the attic. Check for damaged duct work and plugged back draft dampers.

3. Add attic insulation. After air sealing, install fiberglass batt or cellulose insulation to at least R-38 coverage. Insulation slows the rate of heat loss into the attic, which helps keep the roof cold.

To learn more about ice dams, download the fact sheet Preventing ice dams from focusonenergy.com, or call 800.762.7077. Finding attic bypasses may require a Home Performance with ENERGY STAR evaluation. Contact Focus on Energy at 800.762.7077 for more information and to find a consultant partnering with the program.

ODORS

PROBLEM

Cigarette smoke and cooking odors migrate between apartments.

SOLUTION

Seal air leaks between apartments.

Insulating and air sealing your building will also reduce migration of cooking odors and cigarette smoke. Pay special attention to the following problematic areas:

- **Kitchen soffits.** Air can easily flow between apartments if they share kitchen soffits (soffits are the "dropped" ceiling areas where kitchen cabinets are hung). Seal them with spray-in foam.
- **Shared walls.** The open cavity encourages odors to rise from below. Block the cavity at the floor joists or where the cavity meets the attic.
- **Plumbing openings between units.** Block the openings and seal them with caulk or spray-in foam.
- **Hallways.** Shared hallways and landings allow odors to migrate between apartments. Weatherstrip unit-to-unit door frames. Pay special attention to closing the gap between the door and the floor.

Finding air leaks that allow odor migration may require a Home Performance with ENERGY STAR evaluation.

To learn more about preventing odor migration, or to learn more about an evaluation, call Focus on Energy at 800.762.7077.

HIGH TENANT ENERGY BILLS

PROBLEM

High tenant energy bills.

SOLUTION

Install high efficiency equipment. Air seal and insulate your building.

Here are some simple ways to cut tenant energy bills:

- **Choose high efficiency furnaces and boilers.** High efficiency furnaces have an A.F.U.E.[2] rating of 90 percent or greater. High efficiency boilers have an A.F.U.E. of 85 percent or greater.
- **Replace electric water heaters with efficient, natural gas units.** Natural gas water heaters are much less expensive to operate than electric units.
- **Replace kitchen appliances with ENERGY STAR qualified units.** ENERGY STAR qualified refrigerators and dishwashers together can save tenants up to $15 per month in energy costs, compared to units made in the 1970s and 1980s.
- **Air seal and insulate your building.** You'll avoid a host of problems—drafts, migrating odors and high energy costs. The result is greater comfort and affordability—with the benefit of lower tenant turnover.
- **Educate tenants about energy efficiency.**

Call Focus on Energy at 800.762.7077 to get helpful information for your tenants:

- **Summer energy tips and Winter energy tips for apartment and condo residents.**
- **Basics of home heating**
- **Choosing efficient refrigerators and dishwashers**
- **Energy efficient lighting**

Or log onto focusonenergy.com and download these and many other useful fact sheets.

UNEVEN HEATING

PROBLEM
Uneven heating. Individual apartments are too hot or too cold. Windows are left open during the heating season.

SOLUTION
Rebalance your heating system.

Hot water systems. Check zone valves and thermostats for proper operation. Hydronic heating systems are usually "zoned"—that is, a thermostat and valve control the amount of hot water going to each apartment. Sometimes the zone valves are stuck open or closed, resulting in too much heat or no heat at all.

Install updated boiler controls. Instead of manually adjusting the boiler temperatures, install automatic outdoor reset and cut-out controls. Reset controls adjust the water temperature based on outdoor temperatures, while cut-out controls turn the boiler off entirely when the outdoor temperature gets above a certain set point (usually 50 degrees or 60 degrees). These controls have been shown to save about seven percent on annual heating bills in Wisconsin.

Steam systems. Control how much steam goes to each area or apartment. For single-pipe systems you'll need to adjust steam vents on the main distribution line and individual radiators. For double-pipe systems, check that steam traps are operating properly. (Double-pipe steam systems can be converted to hot water systems, resulting in more even heating and lower heating costs).

Furnace systems. Adjust the duct system that distributes warm air. First, ensure good airflow by cleaning registers and furnace filters and fixing leaky ducts. Second, adjust the supply registers, opening them more fully the farther away they are from the furnace. Also, make sure supply registers aren't being blocked by furniture. Third, open or close dampers in the ductwork to increase or decrease airflow to individual rooms.

Thermostats. Check for proper placement. If the thermostat sits in the sun or is located someplace that's too cool, under- or overheating can result. For centrally controlled systems, thermostat tampering can be a problem as well. To avoid tampering, you may need to place the controls for the heating system in a different location than the thermostat sensor.

Balancing heating systems can be quite technical. Call Focus on Energy at 800.762.7077 to learn how to get in touch with a qualified contractor.

DRAFTS

PROBLEM
Drafty apartments.

SOLUTION
Tighten the building shell.

Drafts are created when warm air escapes through leaks in the upper story, pulling cold air into the lower level. This "chimney effect" causes drafts every cold day. On windy days walls and windows also leak.

To prevent drafts, use the following techniques:
Install weather-stripping or gaskets. Weather-stripping works best for sealing around windows and doors, while gaskets seal the gap between different surfaces, like between the ceiling and a recessed light fixture.

Pay attention to these areas:
- **Windows.** Use vinyl or metal V-strips.
- **Doors.** Spring-metal or magnetic weather-stripping are good choices.
- **Attic access hatches or chutes.** Foam gaskets work best.
- **Electrical outlets.** Use gaskets that fit behind the faceplates.

Caulk and seal cracks, holes and gaps. It's best to seal from the inside to prevent building moisture from getting into attics or walls. Fill large holes or cracks with "backing" material, then apply caulk to these key areas:
- Cracks or holes in the foundation.
- Gaps formed where pipes and electrical or phone cables enter the building.
- Around windows and air conditioners.
- Where chimneys, ducts, wiring or plumbing stacks enter the attic.

Add storm windows. Be sure they have strong frames and corner joints and include a weep hole to drain excess moisture. Consider replacing old or damaged windows with ENERGY STAR qualified windows.

Seal hidden air bypasses. Air bypasses are leaks that allow warm air to escape into the attic and walls, drawing cold air into the living area. Finding hidden air leaks may require a blower door test[1]. Contact a consultant working with Focus on Energy for more information.

To learn more about fixing drafty apartments by air sealing and insulating, download the fact sheet The basics of insulating your home from focusonenergy.com, or call 800.762.7077.

[2] A.F.U.E—annual fuel utilization efficiency, a measure of a furnace's overall energy performance. Higher numbers are better. Most units on the market today have A.F.U.E. ratings between 78 percent and 94 percent.

MOISTURE PROBLEMS

PROBLEM

Visible condensation or frost on windows and walls. Mold or fungal growth on window frames, ceilings or walls.

SOLUTION

Reduce moisture sources, increase ventilation and warm up problematic areas.

Follow these guidelines to avoid moisture problems:

Reduce moisture sources.

- Repair plumbing leaks.
- Ensure water isn't getting into the basement. Make sure that downspouts drain water away from the foundation. Install a sump pump if necessary.
- Tell tenants not to dry laundry inside their apartment (hand washed items are OK).
- Use a dehumidifier if necessary, especially in basements.

Ventilate your buildings properly.

- Use effective exhaust fans in kitchens and bathrooms. Check that they exhaust their rated airflow and vent to the outside.
- Encourage tenants to run bathroom fans for 20 to 30 minutes after showering. Installing a timer or humidity-controlled switch will make this easier.
- Make sure gas-fired appliances such as clothes dryers vent to the outside.

Warm up affected surfaces.

- Ensure that walls and ceilings are properly insulated and air sealed.
- If windows are frosting over, check that inner windows are properly sealed and storm windows are fully closed. Also make sure that all combination storm-screen windows work properly so that tenants can easily close the storm windows in cold weather.
- If your windows are single-pane or aluminum-framed windows, consider upgrading the windows to ENERGY STAR qualified windows. Energy efficient windows are much less likely to have condensation problems.

To learn more about avoiding moisture problems, download the fact sheet Controlling moisture problems from focusonenergy.com, or call 800.762.7077.

HIGH HOT WATER COSTS

PROBLEM

High hot water costs.

SOLUTION

Use energy efficient water heaters and water conservation techniques.

Switch central water heaters from electricity to gas. Electric water heaters are typically 2.5 times more expensive to operate than natural gas units.

Reduce the water heater temperature setting. A setting of 120°F is adequate. Higher settings risk scalding small children and elderly tenants.

Install water-saving showerheads. Older showerheads can use up to five gallons of water per minute. Water-saving showerheads can reduce this to two gallons per minute and provide excellent spray patterns. Since most hot water use in apartments is due to showers, your savings can add up fast.

Replace dishwashers with ENERGY STAR qualified units. ENERGY STAR qualified dishwashers can decrease hot water use by 35 percent compared to units made before 1994, saving four gallons of hot water per load.

Replace coin-operated, top-loading washing machines with ENERGY STAR qualified machines. ENERGY STAR qualified units use 40 percent less water per load—a savings of up to 25 gallons. They also have a greater capacity, clean clothes better, are easier on clothes and spin out more moisture, which reduces drying costs—benefits you can mention to prospective tenants.

To learn more about cutting your hot water costs, download the fact sheets Energy efficient clothes washers and Choosing efficient refrigerators and dishwashers from focusonenergy.com, or call 800.762.7077.

FOR MORE INFORMATION

focusonenergy.com

Contact Focus to learn more about smart energy choices. We can send you information on how to save energy in your apartment buildings and fact sheets to distribute to your tenants, or put you in touch with qualified energy efficiency contractors. Call 800.762.7077 for more information.

energystar.gov

This site provides information on energy efficient appliances and lighting that meet ENERGY STAR standards. The product information and calculator let you compare features, operating costs and energy use of ENERGY STAR qualified products with non-ENERGY STAR qualified products.

Focus on Energy works with eligible Wisconsin residents and businesses to install cost effective energy efficiency and renewable energy projects. Focus information, resources and financial incentives help to implement projects that otherwise would not get completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment and control the state's growing demand for electricity and natural gas. For more information call **800.762.7077** or visit **focusonenergy.com**.

focus on energy℠
The power is within you.