

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Administration and Management

Welcome to DEP at Home

Pennsylvania Department of
Environmental Protection
Mike Krancer, Secretary

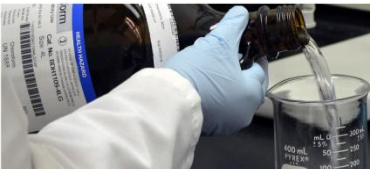
What is the Department of Environmental Protection?

The Department of Environmental Protection's mission is to protect Pennsylvania's air, land and water from pollution and to provide for the health and safety of its citizens through a cleaner environment. We will work as partners with individuals, organizations, governments and businesses to prevent pollution and restore our natural resources.



What is DEP at Home?

DEP at Home is an initiative created by the Pennsylvania Department of Environmental Protection to educate residents about steps they can take in and around their homes to become more energy efficient and environmentally friendly. It includes a series of quarterly webinars and an interactive, traveling exhibit to promote energy conservation and sustainable building materials.



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Featured Products

Learn more about the materials used in the exhibit and how they can be used in your home

Outside

Solar Energy

- Solar electric panels and solar hot water heaters use sunlight to produce electricity and heat water
- The solar tube light directs and transports natural light from the roof into other rooms by using a series of mirrors
- Using solar energy reduces the amount of electricity needed to perform everyday tasks

Rain Barrel

- Rain barrels collect water from the roof through a gutter system
- The water can be used to water gardens, but they also conserve water and reduce stormwater runoff
- Rain barrels should always be protected from mosquito infestation by using BTI, a soil bacterium that kill mosquito larvae

Outside

Permeable Pavers

- Permeable pavers allow water to pass through its solid stone core
- This prevents stormwater runoff, reduces flooding and recharges groundwater

Radon System Fan and Discharge Pipe

- The system depressurizes under the home to prevent radon from entering. In Pennsylvania, reducing this lung cancer risk is important because four in 10 homes have radon above the action level

Green Roof

- Green roofing reduces heating and cooling costs, filters pollutants, lengthens the life of the roof, and reduces runoff by absorbing rainwater
- The green roof is made of sedum plant species.

Bath and Laundry Room

WaterSense® Low Flow Showerhead

- The average family could save 2,900 gallons of water per year by installing WaterSense labeled showerheads
- These showerheads still provide a quality shower

Faucet Aerator and Sink

- Faucet aerators reduce water consumption by adding air to the water flow
- The sink has been recycled from another home

WaterSense® Dual Flush Toilet

- Dual flush toilets reduce water consumption by flushing according to the type of refuse

Bath and Laundry Room

Natural Gas Clothes Dryer

- Natural gas can be used to power all kinds of things, including a clothes dryer
- Clean-burning, Pennsylvania-produced natural gas is used for power

Marmoleum® Flooring

- Marmoleum contains all-natural ingredients and is biodegradable at the end of its useful life
- Due to its anti-static properties, it stays cleaner than other floors and repels dust.

Kitchen

Paint and Adhesives

- The paint and adhesives used in this home have very little or no VOCs (volatile organic compounds) to create better air quality
- Zero and low VOC paint and adhesives release fewer harmful vapors into the home

Ice-stone Counters

- Ice-stone is made from 100 percent recycled glass and Portland cement from Pennsylvania

Natural Gas Appliances

- Natural gas can be used to power all kinds of things, including this cooktop and oven
- The appliances use clean-burning, Pennsylvania-produced natural gas for power

Kitchen

Cork Flooring

- Cork flooring is made from the bark of the cork oak tree, but the process doesn't kill the tree.
- Cork trees can produce the bark for 100 to 150 years, so it is a rapidly renewable material

Energy Star® Appliances

- The refrigerator and dishwasher are both Energy Star® appliances
- They use much less electricity than comparable, non-Energy Star® appliances

Living Room

FLOR® Carpet

- Carpet tiles are a great way to prevent excessive carpet replacement
- The carpet is made from 66 percent recycled materials and is recyclable

Reclaimed Wood Flooring

- Flooring can be salvaged from old homes and reused
- This flooring was salvaged and serves to protect a valuable resource: trees

Bamboo Flooring

- Bamboo flooring is made from a grass that takes significantly less time to mature than hardwoods, which makes it a rapidly renewable material.

Living Room

Energy Star® LED Lighting

- LED (light-emitting diode) lighting uses far less electricity than incandescent bulbs, can last up to 10 years longer than a CFL (compact fluorescent light) and contains no mercury

Energy Star® Window

- This window utilizes a coating that blocks unnecessary light rays to reduce solar heat gain, and has a high insulation factor (R-value)
- It was made in Pennsylvania

Programmable Thermostat

- Programmable thermostats enable homeowners to control the amount of heating or cooling produced at times when the home is vacant

Facades

Fiber Cement Siding

- The siding contains 30 percent post-industrial recycled material, which prevents millions of pounds of waste from being landfilled
- It is very durable and requires little maintenance
- The majority of wood fiber pulp used in this siding is supplied from sustainably managed forests

Insulated Concrete Forms (ICFs)

- Homes built with ICFs have high insulation values and use about 44 percent less energy to heat and 32 percent less energy to cool than traditional wood-framed homes
- The ICFs contain up to 45 percent recycled materials
- They can withstand earthquakes and a three second gust of 150 mph wind

Insulation

Denim Insulation

- Insulation made from jeans!
- Denim insulation contains 80 percent post-consumer recycled content
- There is a natural fire retardant used in this material which also prevents mold and mildew

Cellulose Insulation

- Insulation made from newspaper!
- This cellulose insulation is made of 86 percent recycled newsprint
- It is natural, non-toxic, non-corrosive and permanently flame-resistant
- The product is manufactured in Pennsylvania, so there is less fuel used and fewer emissions to transport this material to a local home

Insulation

Spray Foam Insulation

- A two-component mixture comes together at the tip of an applicator to form an expanding foam that is sprayed onto roof tiles, concrete slabs, into wall cavities or through holes drilled in a finished wall cavity
- Buildings treated with spray foam typically insulate up to 50 percent better than those using traditional insulation products

Roofing and Drywall

Rubber Roof Shingles

- The shingles contain up to 80 percent recycled post-industrial rubber and plastic
- The post-industrial materials include waste like car bumpers and baby diaper production remnants
- Manufacturing the shingles prevents these materials from ending up in landfills

Energy Star® Cool Roofing

- This roofing product reflects the sun's rays and reduces cooling costs and the heat island effect

Drywall

Gypsum Drywall Panel

- These panels are used in exterior steel or wood-framed construction as a backup for siding, brick veneer and much more
- They are composed of a fire-resistant gypsum core encased in recycled natural-finish face paper and recycled liner paper
- This product is manufactured in Pennsylvania, so there is less fuel used and fewer emissions to transport this material to a local home



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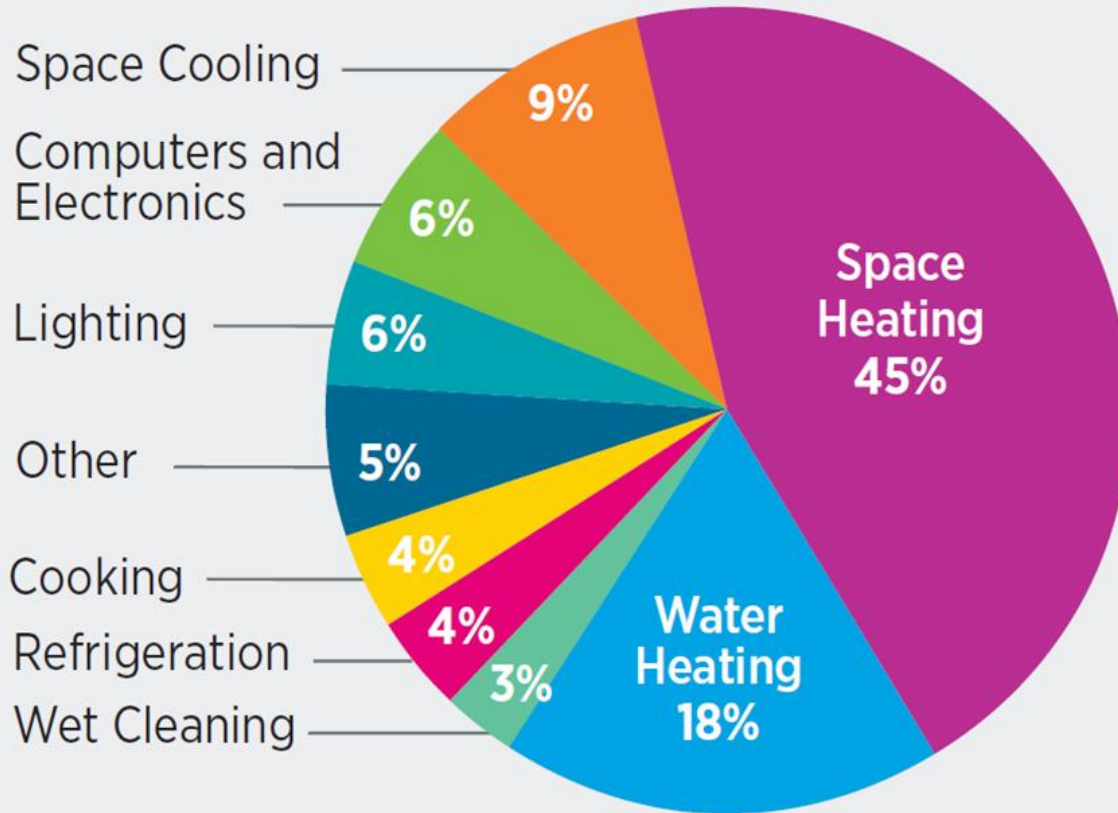


Office of Water Management

Energy Efficiency in the Home

Follow these tips and discover easy, inexpensive ways to maximize your home's efficiency!

Home Energy Use



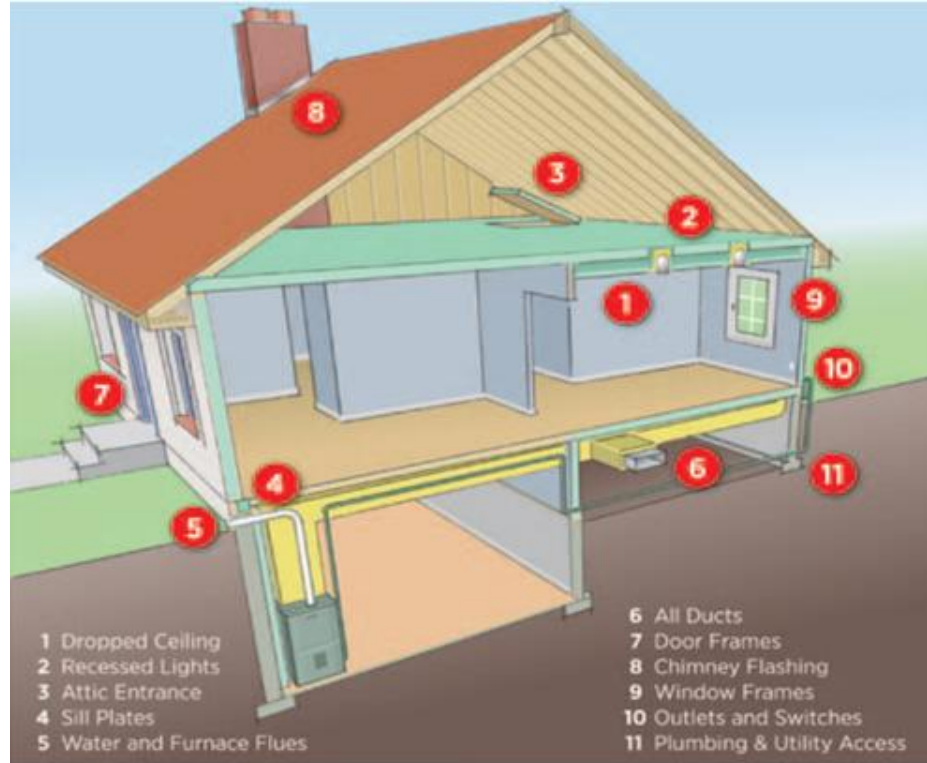
How We Use Energy in Our Homes

Heating accounts for the biggest portion of your utility bills. *Source: 2010 Buildings Energy Data Book, Table 2.1.1 Residential Primary Energy Consumption, by Year and Fuel Type.*

Uniform Construction Code

The Uniform Construction Code provides minimum requirements for efficient design and construction for new and renovated residential and commercial buildings. Energy codes help to save money; protect the home from high utility bills and shoddy construction; ensure safety; provide quality and comfort; are a cost-effective investment; reduce pollution; increase reliability; and help consumers make informed decisions.

Reducing Air Infiltration



This illustration shows all the places where air can leak in/out of a home and reduce energy efficiency

Reducing Air Infiltration



Caulking

- Air can leak into a home through windows, doors, plumbing vents, attic hatches and much more
- Homes can be sealed using caulk that is low in volatile organic compounds
- Remove old caulking before applying new caulking and apply new caulking on inside and outside of doors and windows
- Costs \$5 to \$7 per tube

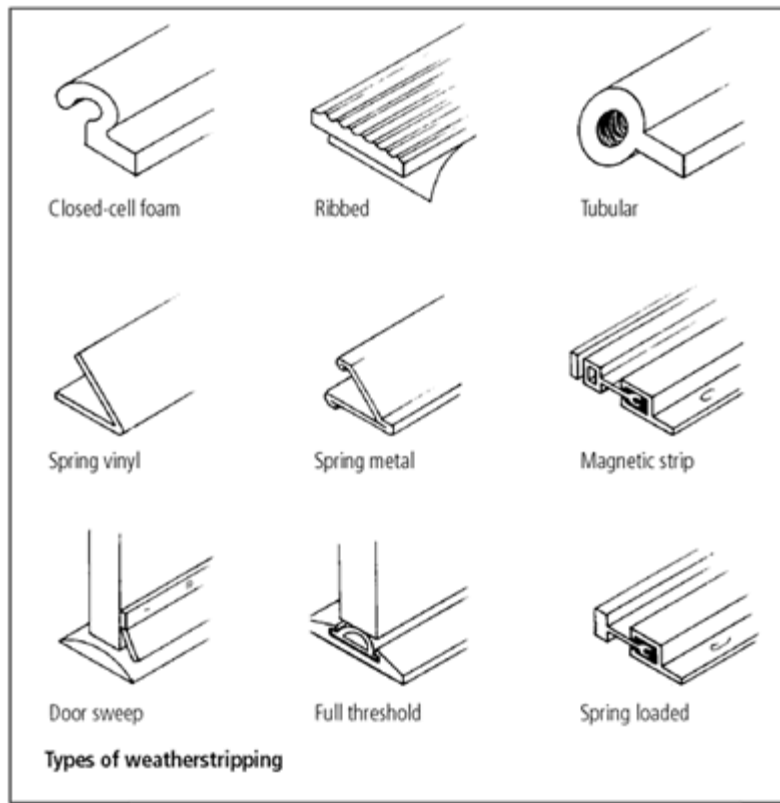


Spray Foam

- Fill larger cracks and gaps with foam inside and outside the home
- Dried foam trims easily
- Costs \$4 to \$

Reducing Air Infiltration

Weatherstripping Exterior Doors



Reducing Air Infiltration



Windows

- For homes without storm windows, install plastic window coverings – inside or out

Attic Doors

- Make sure the door or hatch to the attic seals well and closes tightly
- A gap around the attic opening can leak worse than others due to the stack effect
- Or, install an attic door cover, such as the one in this photo



Reducing Air Infiltration



Wall Plate Gaskets

- Install foam gaskets behind wall plates
- Exterior walls should all have gaskets
- In older homes, all walls should have gaskets
- Costs \$2 to \$3 per dozen



Household Exhaust Fans

- Don't run bath or stove fans any longer than necessary, they remove heated air from the house
- Close the bathroom door or open a window instead

Programmable Thermostats



- Costs \$20 to \$70
- Auto temp setback for overnight
- Setbacks during “away” hours
- ALWAYS pays for itself within months

Each degree lowered can save up to 3 percent on heating



Energy Efficient Lighting

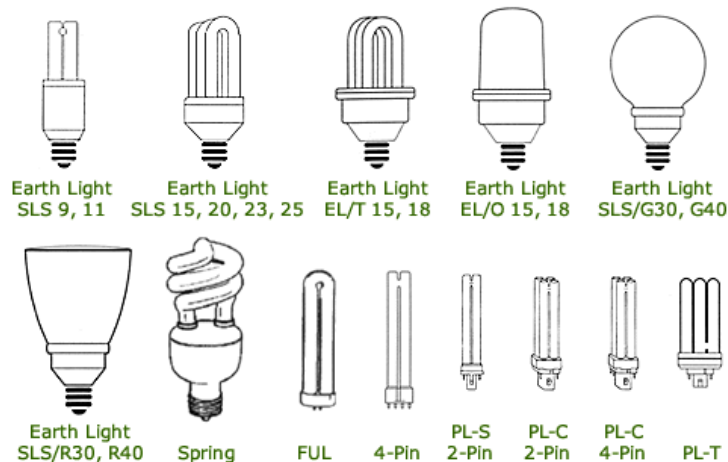
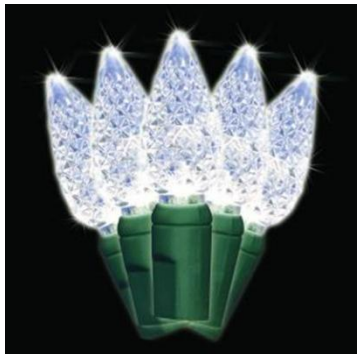
Replace incandescent bulbs with CFLs or LEDs

CFLs (Compact Fluorescent Lamps)

- Consume 75 percent less energy than incandescent bulbs
- Last up to 10 times longer than incandescent bulbs

LEDs (Light-Emitting Diodes)

- Use less energy than compact fluorescents
- Last up to 25 times longer than incandescent bulbs



No-Cost Energy Savers

Hot Water Heaters



- Check the hot water temperature – 120 degrees should work
- Check the dishwasher manual for temperature recommendation
- Lower the water heater thermostat to the lowest level that meets your hot water needs
- Every 10 degrees lowered saves 5 percent on water heating costs

No-Cost Energy Savers



Refrigerators

- Check the temperature settings
- Freezer section should be 0 to 5 degrees
- Refrigerated section should be 35 to 40 degrees
- If the setting is too low, it will use extra energy
- Clean the condenser coils in the back
- Clean the door gaskets to ensure good seal

No-Cost Energy Savers

Computers



- Make sure energy management software is installed and operating
- Set the software to make the PC hibernate or sleep after 20 to 30 minutes
- Turn the PC power off if not used for more than a day

No-Cost Energy Savers



Fireplaces

- Avoid fireplaces that don't use outside air to fuel the fire
- Standard fireplaces remove warm air from the home
- When not in use, tightly close the flue draft

Low-Cost Energy Savers



HVAC Air Filters

- Replace air filters regularly
- Plugged filters require more fan energy
- Slower air flow makes furnace run longer
- Costs \$4 to \$8 per filter
- It will clean air using less energy



Furnace

- Have furnace burner serviced and tuned annually
- Costs \$50 to \$100
- Almost always a 10 percent fuel reduction

Home Cooling

- If the central air conditioning unit is more than 12 years old, replacing it with an ENERGY STAR qualified model could cut cooling costs by 30 percent
- ENERGY STAR qualified central air conditioners have higher seasonal energy efficiency ratio (SEER) and energy efficiency ratio (EER) ratings, making them over 15 percent more efficient than conventional models

Home Heating

- ENERGY STAR qualified boilers have annual fuel utilization efficiency (AFUE) ratings of 85 percent or greater, making them 6 percent more efficient than models that simply meet the federal minimum standard for energy efficiency
- Certified gas furnaces in the northern half of the U.S. are up to 16 percent more energy efficient than baseline models and can save an average of \$94 dollars in energy costs per year
- Certified oil furnaces are up to 4 percent more energy efficient than baseline models and can save an average of \$66 in energy costs per year

Ductless HVAC Systems



- ENERGY STAR certified ductless heating and cooling systems are an increasingly popular, cost-effective solution to replace inefficient baseboard electric heating and window air conditioners in older homes
- Ductless split-system air conditioners and heat pumps, sometimes called mini-splits, do not use ductwork for an air distribution system
- They are also used in new construction, home additions, multi-family (condo or apartment) housing, and to improve comfort in poorly heated or cooled rooms

Energy Audits



- Another way to make a home more energy efficient is to have a certified professional conduct an energy audit of the home
- The audit will show which parts of the home use the most energy and suggest the best ways to cut energy costs
- The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET) certify home energy auditors
- Final result of audit is a report with recommendations specific to the home

Water Conservation



Dripping Faucets

- Replace gaskets or seals, especially hot water
- Costs \$2 to \$5
- Leaks can cost up to \$4 per month!

Showerheads

- Install a low flow shower head
- A family could save more than 370 kilowatt hours of electricity annually, enough to power a house for 13 days



Water Conservation

Dishwasher

- Use dishwasher and laundry washer only when they are loaded to capacity
- Top Loading Laundry Washer 35-50 gal./load
- Front Loading Laundry Washer 22-25 gal./load

Garbage Disposal

- Use the garbage disposal sparingly
- These wastes place a greater burden on the septic system
- If you have garden space, compost the material instead



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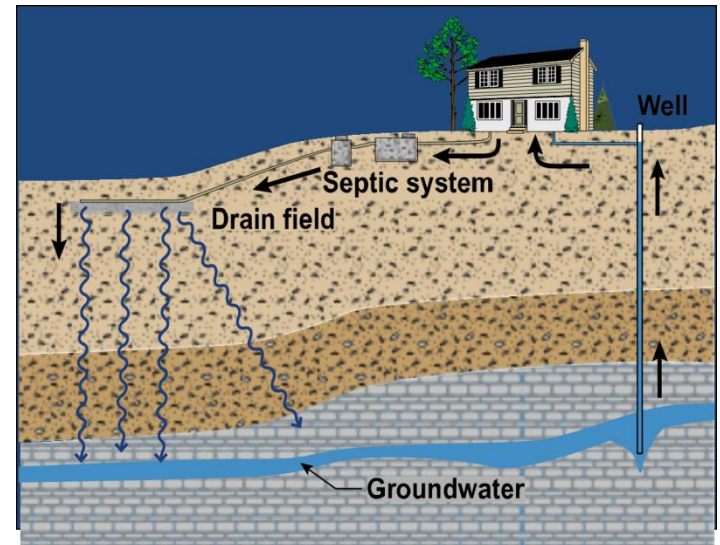
Office of Water Management

Protect your Family

Learn more about common household items, practices and occurrences that could affect your household

Septic System Maintenance

- Inspect the system parts regularly
- Conserve water and reduce waste flow to the treatment tank
- Know what not to put down the drain
- Protect the system area from vehicles, equipment, and livestock
- Do not plant trees or shrubs near the system
- Utilize proper stormwater management to protect the system
- Maintain accurate records of the sewage disposal system



Septic System Maintenance

Regular Inspections

- The distribution box should be water tight and level
- Effluent should flow without obstructions
- Dosing Tank and Pump: pump and electrical wires should be checked and serviced if needed
- Absorption Area: inspect the surface of the ground for sponginess and sewage



Pumping the Treatment Tank

- Treatment tanks should be pumped every three years or when inspection reveals sludge or scum in excess of 1/3 of the tank volume
- Solids are pumped through the manhole (in the center of the tank) NOT through the inspection ports
- Be sure treatment tank is completely emptied

Septic System Maintenance

Treatment Tank Additives

- Commercial septic tank additives do not eliminate the need for periodic pumping and may be harmful to the environment and absorption field
- Biological or chemical additives are not required for successful restart or continuous operation of your septic system
- Do not wash or disinfect the tank after having it pumped



Drinking Water Well Maintenance

Well Location

- At least 100 feet from a septic tank, dosing tank or seepage bed
- Up-gradient and away from runoff, roads and other sources of contamination
- There should be a 100-foot wellhead protection zone if possible

Inspections

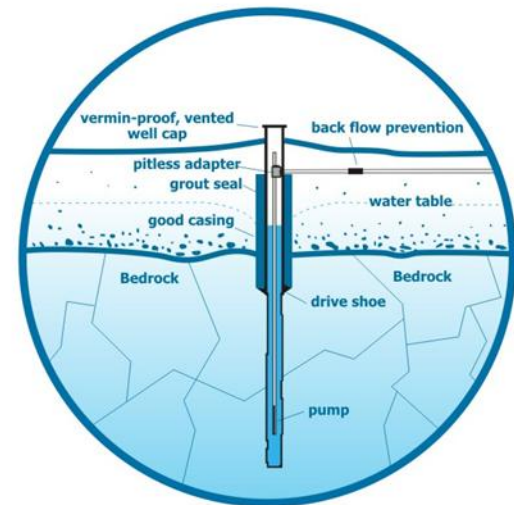
- Keep the area clean and easily accessible
- Inspect your well casing or spring box to detect cracks, holes or corrosion
- Have a qualified professional inspect your well at least every 10 years
- Keep records in a safe place

Drinking Water Well Maintenance

Well Construction

- Well head should be 12 inches above ground
- The well casing should go to bedrock level
- There should be a sanitary well cap on top of the well
- It should be at the top of any sloping ground
- There should be a grout seal on the well casing

Proper Construction of Private Water Wells



▶ Drinking Water Well Maintenance

Test Your Water!

- Why test? - many pollutants have no symptoms
- Many water supplies have never been properly tested
- Use state accredited laboratories
- Consider third party, chain-of-custody testing
- Do an annual test for bacteria (every 14 months)
- Test for pH, TDS and other pollutants every three years
- Always compare test results to drinking water standards

West Nile Virus Prevention

Take these steps to make sure your property doesn't turn into a mosquito breeding ground

- Remove any object that could collect standing water, or drill holes in those that are left outdoors regularly
- Clean roof gutters every year, particularly if the leaves from nearby trees have a tendency to clog the drains
- Do not let water stagnate in birdbaths
- Aerate ornamental pools, or stock them with fish
- Use landscaping to eliminate standing water
- Treat standing water that cannot be eliminated with Bti products that are sold at outdoor supply, home improvement and other stores (Bti is a natural product that kills mosquito larvae, but is safe for people, pets, aquatic life and plants)

Electronics Recycling

Think Twice about Throwing away Electronics

- Beginning Jan. 24, 2013, residents can no longer throw away electronics in their regular trash pick-up
- TVs, laptops, computers, monitors, mice and printers should not be placed in the trash
- Contact your municipality to see if a recycling program is available
- Reuse your electronic device by giving it away or selling it
- Call DEP's Recycling Hotline at 1-800-346-8282 for more information

Home Heating Oil Safety

Heating Oil Tank Maintenance

- For safety reasons, always assume the tank contains at least some oil
- Routinely inspect the exterior of the tank and all attached equipment
- Check for signs of rusting on the tank and its structural supports
- Examine the tank's fill line and feed line to the furnace for leaks
- Never tip over or empty a tank on the ground
- Enlist a professional to perform maintenance or alterations to a heating oil tank system
- Recognize that wet spots or odors near the tank may signal a problem

Mine Subsidence Insurance (MSI)

- MSI is a non-profit insurance fund sustained by its policyholders' premiums, it is the largest provider of mine subsidence protection in Pennsylvania
- The risks associated with mine subsidence are typically excluded from standard homeowner's insurance policies
- The cost to repair mine subsidence damage can be very high; while the average loss is \$50,000, many claims have been paid in excess of \$200,000
- All residents who own structures in a mining region are encouraged to visit www.paMSI.org or call 800-922-1678 to check mining conditions and determine whether it is necessary to apply for coverage

Radon

- Radon is a colorless, odorless, radioactive gas that occurs naturally through the breakdown of uranium in soil and rocks
- It can seep into homes through cracks in basements and foundations, and can build up inside to concentrations many times the recommended level
- Radon is responsible for an estimated 20,000 lung cancer deaths in the U.S. every year, and about 40 percent of Pennsylvania homes have radon levels above the EPA action level of four picocuries per liter

Radon

- All homes, public and private buildings should get tested
- The best time to test is during the cold weather months, when homes and buildings are closed and radon is most likely to build up to unhealthy levels
- Residents can purchase a radon test kit at a home improvement store or a Pennsylvania-certified radon laboratory
- Completed test kits are sent to a Pennsylvania-certified lab where the samples are analyzed and the results are then sent to the resident
- If results reveal radon levels above the action level, a radon mitigation system may be necessary

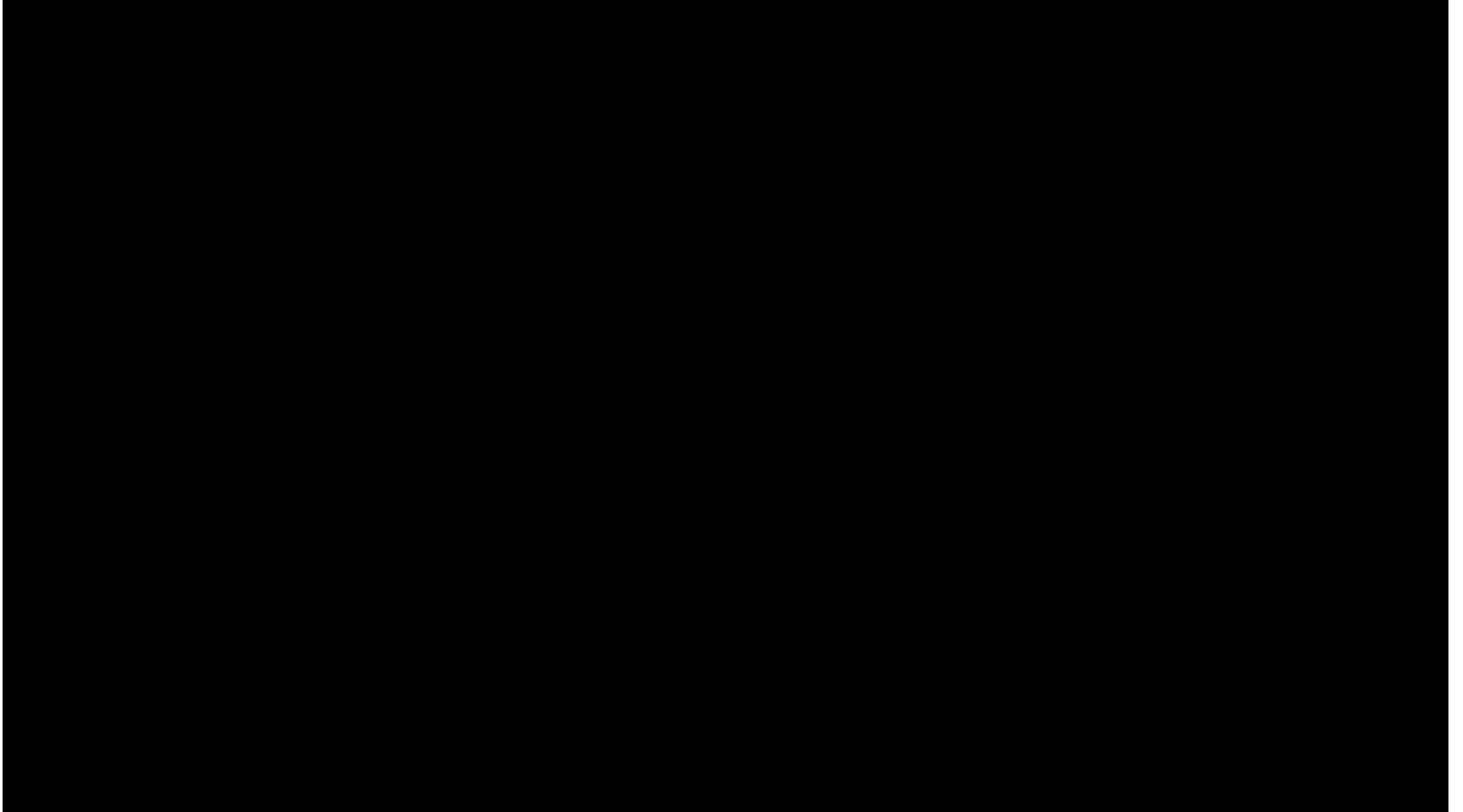
▶ Upcoming Webinar: Radon Awareness

January is National Radon Action Month, and the Department of Environmental Protection is spreading awareness through its quarterly webinar series, DEP at Home, on Wednesday, Jan. 16 from 7 to 8 p.m.

The webinar features Robert Lewis and Matthew Shields of DEP's Bureau of Radiation Protection in addition to Kevin Stewart of the American Lung Association. The webinar will include a question-and-answer session with these experts.

For more information, or to register, visit www.dep.state.pa.us and click on the DEP at Home button.

Radon





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DEPARTMENT OF ENVIRONMENTAL PROTECTION



Office of Water Management

Grants and Assistance

Learn more about programs that can help you
make your home a more efficient place!

Weatherization Program

- The Weatherization Program was created to train homeowners on ways to reduce energy use by having trained professionals conduct energy audits
- Residents can make upgrades or repairs based on the recommendations of the energy audit
- The program is funded by state and federal government
- There are several county-based weatherization teams

Weatherization Program

What are the Benefits?

- Average savings of \$250 a year
- Reduced dependence on foreign oil
- Reduces pollution

Who is Eligible?

- Homeowners or renters
- Family income guidelines:
 - One person \$14,355
 - Two persons \$19,245
 - Three persons \$34,135
 - Four persons \$29,025
 - \$4,890 per dependent thereafter

Weatherization Program

Application Process

To apply for this program, please contact your local administering agency at the following location:

<http://www.newpa.com/community/energy-conservation-and-weatherization>

Program Contact Information

For more information, please visit the Pennsylvania Weatherization Assistance Program website at:

<http://www.newpa.com/community/energy-conservation-and-weatherization>

Low-Income Home Energy Assistance Program (LIHEAP)

What is LIHEAP?

- LIHEAP is a financial assistance program created to offset the costs of home heating
- The program is facilitated by the Pennsylvania Department of Public Welfare and funded by the Commonwealth of Pennsylvania
- There is a LIHEAP office in every county

Who is Eligible?

- Homeowners or renters
- Household income guidelines
 - One person \$12,920
 - Two persons \$17,321
 - Three persons \$21,722
 - \$4401 for each additional dependent thereafter



▶ Keystone Home Energy Loan Program (HELP®)

What is Keystone HELP?

- Keystone HELP is a loan program designed to finance home improvements that increase energy efficiency
- The loans range from \$1,000 to \$35,000 and offer a fixed rate, all backed by the Commonwealth of Pennsylvania

What Projects are Eligible?

- “Single Measure Installed Energy Improvements” such as upgraded HVAC, windows and insulation (up to \$15,000)
- “Whole House Energy Improvements” (up to \$15,000)
- Geothermal heat pumps (up to \$15,000)
- Solar and other improvements (up to \$35,000)



Keystone HELP[®]

Who is Eligible?

- Pennsylvania homeowners who own their one to two unit primary residence located in Pennsylvania
- Applicants must have qualifying credit and demonstrate the ability to repay
- Applicants can make up to \$250,000

Electric Choice

- In Pennsylvania, you can choose which company supplies your electricity - shopping for the “generation” portion of your electric bill
- Your utility will always deliver the electricity, respond to emergencies and provide a bill with your new supplier’s charges
- Saving just half a cent per kilowatt hour (kWh) could translate into material savings, for example, if you use 1000 kWh per month, you would save \$60 per year
- Visit www.papowerswitch.com for more information, or to shop of electricity



Other Incentive Programs

Federal Tax Incentive Program

- Go to www.energystar.gov and click on this icon on bottom of home page
- Tax credit covers geothermal heat pumps, small wind turbines, solar energy systems and fuel cells



Additional Resources

www.energy.gov

www.energystar.gov

www.puc.state.pa.us

www.dep.state.pa.us

www.eere.energy.gov/topics/homes.html

www.dsireusa.org

www.bpi.org

www.resnet.us

Still Have Questions?

Feel free to contact us at
ra-epDEPatHome@pa.gov
or 717-783-2300



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