

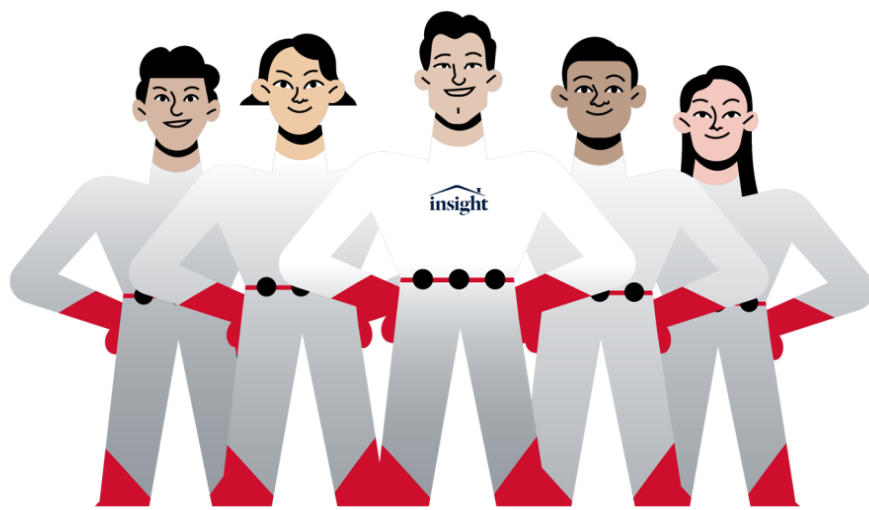


HOME INSIGHTS

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COURTESY OF COLE ATKINS

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CONGRATULATIONS

Welcome to Home Insights, your personalized and customized “homeowner’s guide to your home.”

Home Insights is designed to show you how to enhance your comfort, ensure your safety, and maximize your investment.

When we inspected your home, we captured data for lots of components, including your roof, HVAC system, electrical system, plumbing, water heater, and appliances. All of the data we collected during the inspection is included in this document to provide you with a quick reference and information about how to maintain your home.

Because how well you maintain your home has a big impact on your future spending. Better maintenance leads to lower long-term costs and extended life expectancy for all of your major systems and components. We realize you’re probably not thinking about selling your home because you just moved in, but somewhere down the road, you’ll probably move on to another house. How well you maintain this home over the years has a big impact on how well you maximize your investment when you sell the house. You will be much happier when you sell your house if you’ve taken good care of the house during your stewardship.

Your plan of action is simple - perform regular maintenance. Change your HVAC filters regularly. Clean your gutters regularly. Check your roof regularly. Check your foundation quarterly. And even if it’s a hassle, access your attic and crawl space at least quarterly. Regular maintenance minimizes expensive, longer-term issues.

You should also pay attention, especially to your high value/high-cost systems and components, e.g., roof, HVAC, electrical, plumbing. Systems change and degrade over time, and it’s not always obvious when problems start to occur, especially when you’re living in the house day to day. But little problems that aren’t resolved generally turn into bigger problems or safety issues. Therefore, stay vigilant and don’t procrastinate - fix little issues before they can evolve into bigger, expensive problems.

If you need help with any system or component, reach out to your real estate agent, who is well-connected in your local community and can provide good advice. You should also check out our partners, included herein and on our website. You’re certainly also welcome to contact us if we can be of service.

Congratulations again and best wishes in your new home!

CATEGORIES, SYSTEMS, AND COMPONENTS

There are 11 major categories in a home, including 100+ systems and components. The more you know about each system and component, the more likely you'll properly maintain your home's value during your ownership. Our graphic below is a good place to start when considering how to think about your home holistically, understanding, of course, that not every home includes every component. Our homeowner's guide is structured according to the 11 categories.



EXTERIOR

Driveway, Walks, Siding, Chimneys,
Doors, Garage Door, Stairs/Steps,
Hose Faucets, Stoop, Porch,
Deck/Balcony, Patio, Fence,
Retaining Wall, Carport



ROOF

Roofing,
Flashing,
Skylights



WATER CONTROL

Grading, Gutters/Downspouts,
Exterior Drains, Window Wells,
Sump Pump



FUEL SERVICES

Fuel Tanks,
Fuel Meter



STRUCTURE

Foundation, Beams, Piers/Posts,
Floor Structure, Wall Structure,
Roof Structure, Roof Sheathing,
Attic, Crawl Space



INSULATION/VENTILATION

Interior Insulation, Attic Insulation,
Crawl Space Insulation,
Exhaust Ventilation, Attic Ventilation,
Crawl Space Ventilation



ELECTRICAL

Service, Panel, Sub-Panel, Branch
Circuits, Grounding/Bonding,
Receptacles, Switches, Fixtures,
Smoke Detectors, CO Detectors



PLUMBING

Service Line, Main Shut-off, Supply
Pipes, Drain-Waste-Vents, Toilets,
Showers/Tubs, Sinks, Water Heaters,
Whirlpool, Sewage Ejector Pump,
Fire Sprinkler System



HVAC

Heating System,
Cooling System,
Distribution,
Thermostats, Humidifiers



INTERIOR

Floors, Walls, Ceilings, Doors,
Stairs/Steps, Cabinets/Drawers,
Countertops, Windows, Fireplaces,
Fuel-burning Appliances



APPLIANCES

Range/Ovens, Ovens, Microwaves,
Cooktops, Garbage Disposers,
Dishwashers, Refrigerators/Freezers,
Washer, Dryer

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QUICK REFERENCE

PROPERTY

DRIVEWAY
WALKS

Asphalt
Concrete, Pavers

EXTERIOR

WALLS
CHIMNEY
CHIMNEY
DOORS
STAIRS/STEPS
PORCH
DECK/BALCONY
PATIO

Vinyl, Brick
Brick
Brick
Wood, Glass
Concrete, Wood
Wood, Open, Covered
Wood
Pavers, Open

ROOFING

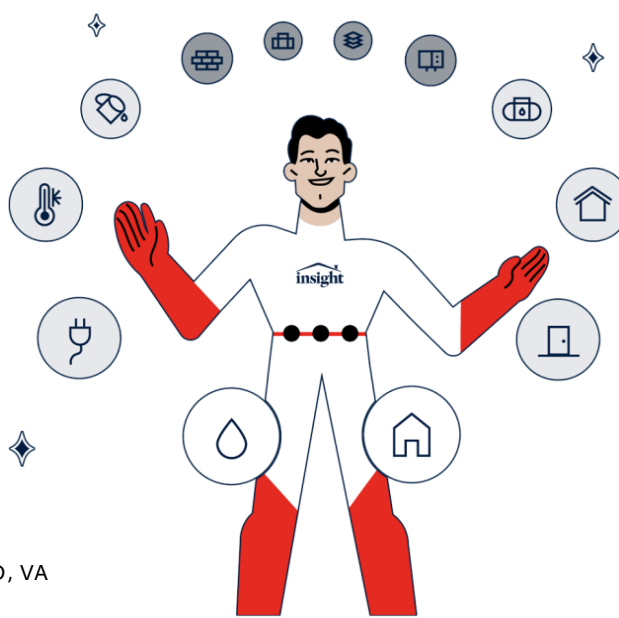
ROOF COVERING

Fiberglass Architectural Shingle

WATER CONTROL

GUTTERS/DOWNSPOUTS
EXTERIOR DRAINS
WINDOW WELLS

Aluminum
Basement Stairwell
Drainage Control/No Egress



QUICK REFERENCE

FUEL SERVICES

FUEL TANK	Rear, Underground Oil, Unable to Determine
FUEL METER	Left Side

STRUCTURE

FOUNDATION	Concrete Blocks, Basement
BEAMS	Wood
PIERS/POSTS	Concrete Blocks
FLOOR	Dimensional Lumber, Conventional Framing
WALLS	Wood Framing
ROOF	Dimensional lumber, Rafters
ROOF SHEATHING	Plywood

INSULATION AND VENTILATION

ATTIC INSULATION	Fiberglass batts, Loose cellulose
ATTIC VENTILATION	Gable Vent

ELECTRICAL

SERVICE	Rear, Unable to Determine, Underground, 200 amps incoming
ELECTRICAL PANEL	Laundry Room, Circuit Breaker, 200 amps, 120/240 panel voltage
BRANCH CIRCUITS	Copper, Non-metallic Sheathed Cable (Romex)
GROUNDING/BONDING	Unable to Determine

QUICK REFERENCE

HVAC

HEATING SYSTEM
COOLING SYSTEM
DISTRIBUTION

The lower level closet., Tankless Boiler, Natural Gas, Utica, 2 years old
Rear Exterior, Central Split, Electric, Carrier, 27 years old
Ductwork and radiant piping.

PLUMBING

WATER SERVICE LINE
SUPPLY PIPES
DRAIN, WASTE, VENTS
WATER HEATER

The front center of the crawlspace., PVC, Public Water
Copper
PVC, ABS, Cast Iron, Public Sewer
Basement, Tankless On-Demand, Natural Gas, Tankless System gallons, Utica, 3 years old
Interior

WHIRLPOOL

INTERIOR

FLOORS
WALLS
CEILINGS
STAIRS/STEPS
WINDOWS
FIREPLACE
FIREPLACE
FUEL-BURNING APPLIANCE
FUEL-BURNING APPLIANCE

Carpeting, Wood, Tile, Stone
Drywall, Masonry
Drywall
Conventional
Wood, Vinyl, Double Hung, Casement, Fixed, Slider
Built-In
Built-In
Natural Gas
Natural Gas

APPLIANCES

RANGE/OVEN
MICROWAVE
DISHWASHER
DRYER

Free-Standing, Electric
Built-In
Built-In
Electric

WATER SHUT-OFF

Know the location of your main water shut-off valve and keep it readily accessible.

In case of emergency, e.g., overflowing bathtub, leaking pipe, you should know the location of your main shut-off valve.

Mark the valve with a bright-colored ribbon or tag.

Engage a plumber if your main shut-off valve is inoperable or leaks.

Your main water shut-off valve should be readily accessible.

No boxes, no storage, no personal items, trim vegetation.

Your main water shut-off is in the The front center of the crawlspace/.



Practice your emergency plan annually.

Test your main shut-off valve annually.

Practicing may help you to save valuable time and reduce water damage.

ELECTRIC SHUT-OFF

Know the location of your electricity shut-off and keep it readily accessible.

Your main circuit breaker controls power to your entire house.

In case of emergency, you should know the location of your main circuit breaker.

Your main circuit breaker should be readily accessible.

No boxes, no storage, no personal items, trim vegetation.

Your main circuit breaker is in the electrical panel in the Laundry Room.

Flip the switch on your main breaker to ensure that all power can be turned off quickly.

Engage an electrician if your main circuit breaker is inoperable.



Practice shutting off the electricity annually.

Coordinate your test with other occupants.

Turn off all motor-powered devices, e.g., appliances, washer, dryer, fans etc.

Disable any backup power generators.

Flip the main switch to turn off electricity.

After the power is off, test switches and fixtures to ensure all power is off.

GAS SHUT-OFF

Know the location of your gas shut-off valve and keep it readily accessible.

In case of emergency, you should know the location of your main shut-off valve.

Do not turn off your main gas valve unless there is an emergency.

Gas leak, strong gas odor, natural disaster, etc.

Your main gas shut-off valve should be readily accessible.

No vegetation, no boxes, no storage.

Engage a plumber if you have any concerns about your main gas shut-off.

Your main gas shut-off is in the Rear.



Do not turn on your gas shut-off without the assistance of a plumber or the gas company.

Appliance pilot lights go off when the main gas is turned off.

If appliance valves aren't properly managed, gas may be released into the interior when the gas main is turned on again.

Engage a plumber or the gas company to ensure that gas is turned on properly.

AIR FILTERS

Change your air filters regularly!

Cleaner Indoor Air

Air filters collect dust, spores, hair, pet dander, and other particles that get pumped through your HVAC system; changing your air filters regularly helps you to have cleaner, healthier air.

Better Health and Seasonal Allergy Relief

Cleaner indoor air can also help improve allergies and asthma. If you suffer from congestion, itchy nose, or breathing issues, try changing your air filters more often.

Improved HVAC Efficiency

Changing your air filters helps your HVAC system perform more efficiently; changing your air filter regularly can help your system last longer, require less maintenance, and help to save you money on your energy bill.



SIZE

14x14x1



SIZE

24x30x1

Filter Types FYI

Fiberglass filters are a lower cost option, but need to be replaced monthly.

Pleated air filters are usually made of higher quality materials and can last three to six months depending on material, manufacturer, and frequency of use.

Follow instructions included with your filter for detailed guidance.

EXTERIOR

Driveway

Material: Asphalt

You have an asphalt driveway.

Asphalt is a combination of concrete rubble and pebbles held together by a mix of petroleum; asphalt is common because it is one of the best quality surfaces and cost-effective.

Because your driveway endures changes in climate, temperature, weather, and other external conditions, issues may occur which require your attention - cracking, edge cracking, fading, oil spots, potholes. Therefore, your driveway requires maintenance to minimize cracking, corrosion, puddles, or surface depressions.

Inspect your driveway monthly.

Your house is in an area which is susceptible to heavy rain, snowing, freezing, and thawing. Cracks are inevitable because of weather conditions; cracks occur because of movement in the base or subsoil during freezing or thawing. Movement also can occur because of design or landscaping which may prevent surface water to drain properly.

Repair and fill cracks quickly.

Water penetration can quickly turn even the smallest cracks into large cracks. Most cracks can be filled with a high-quality asphalt sealer. If there are larger cracks, clean the cracks and holes before filling and sealing. In addition to treating cracks, seal the driveway every two to three years to slow down driveway deterioration. If you notice drainage issues or standing water that doesn't drain after 24 hours, consider contacting a driveway contractor to evaluate and repair the issue.

Don't drive on the edges!

Driveway edges are the weakest part of your driveway because edges receive the least amount of support. You can build up the soil near the edges; topsoil should be about one inch lower than the sides of your driveway to permit water drainage and grass growth. You may notice that weeds and grass want to push through and create cracks; using spot killer typically fixes the situation. If you have other plants, shrubs, or trees, roots may cause issues; in such cases, you may want to remove or relocate the plants or trees.

Clean up gas and oil spills quickly.

Keep your eyes open for gasoline or oil spills, which dissolve the surface of your asphalt driveway. If there are leaks or spills, use absorbent materials quickly and clean up the spills completely. You may also want to inspect your vehicle.

Use rock salt or potassium chloride to melt ice or snow.

Avoid using salt or de-icing agents that have a chemical base; they're highly corrosive and damage the surface of your driveway.



Walk

Material: Concrete

You have concrete walks.

One of the best attributes of a concrete walk is how little maintenance and routine care it needs over its lifetime. But no walk material is maintenance-free. Your concrete walk requires maintenance to minimize cracking, corrosion, puddles, or surface depressions.

Inspect your walk monthly.

Your house is in an area which is susceptible to heavy rain, snowing, freezing, and thawing. Cracks are inevitable because of weather conditions; cracks occur because of movement in the base or subsoil during freezing or thawing. Movement also can occur because of design or landscaping which may prevent surface water to drain properly.

Seal your walk annually.

Seal your walk annually to minimize cracks and deterioration. If you notice drainage issues or standing water that doesn't drain after 24 hours, consider contacting a walk contractor to evaluate and repair the issue.

Repair and fill cracks quickly.

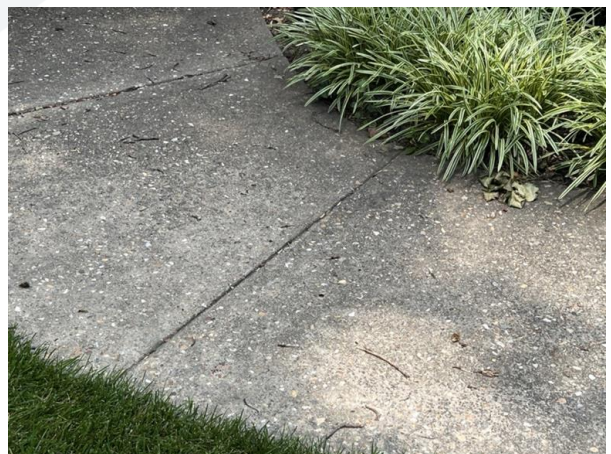
Water penetration can quickly turn even the smallest cracks into large cracks. Most cracks can be filled with a high-quality sealer. If there are larger cracks, clean the cracks and holes before filling and patching. After the compound dries, seal the entire walk.

Clean up gas and oil spills quickly.

Keep your eyes open for gasoline or oil spills, which dissolve the surface of your asphalt walk. If there are leaks or spills, use absorbent materials quickly and clean up the spills completely. You may also want to inspect your vehicle.

Use rock salt or potassium chloride to melt ice or snow.

Avoid using salt or de-icing agents that have a chemical base; they're highly corrosive and damage the surface of your walk.



Walk

Material: Pavers

You have a walk constructed of pavers.

Pavers are outstanding for aesthetic appeal and stylistic diversity. There are many different types of pavers, each of which requires maintenance. Brick pavers can be damaged and require frequent attention. Concrete pavers experience color fade and can crack because of extreme temperature fluctuations. Bluestone has a uniquely beautiful blue color but it's also expensive. Gravel or grass-filled plastic pavers are durable and are generally eco-friendly pavers because they're sourced from 100% recycled plastic.

Fill cracks with polymeric sand.

Polymeric sand is a blend of properly graded fine sand and a binder compound (polymer) that is specially formulated for filling in the joints between bricks, pavers, and natural stones for hardscapes. Polymeric sand hardens when moistened, which helps hold pavers in place and prevents weeds from growing between pavers. Do not use cheap polymeric sand. Do not use regular sand.

Sweep debris and dirt from pavers.

Removing debris from pavers keeps them clean and reduces the risk of staining.

Remove weeds and growth between pavers.

Weeds and moss growth in between pavers is an on-going problem for many homeowners; weeds and growth are unsightly and reduces your home's curb appeal. Remove the weeds and fill gaps with polymeric sand.

Spray pavers to wash away grime.

Don't spray directly into the joints, which can disrupt the sand. Be careful using a power washer as it may remove sand from in between the joints of the paving stones; if power-washing deteriorates sand, fill the joints with polymeric sand after the walk dries.

Scrub stains using a mild detergent mixed with water.

Use a wire brush to remove stains. Test the brush and detergent in a hidden area to test for damage to the pavers before using it in a highly visible area. Wash away the detergent completely after cleaning.

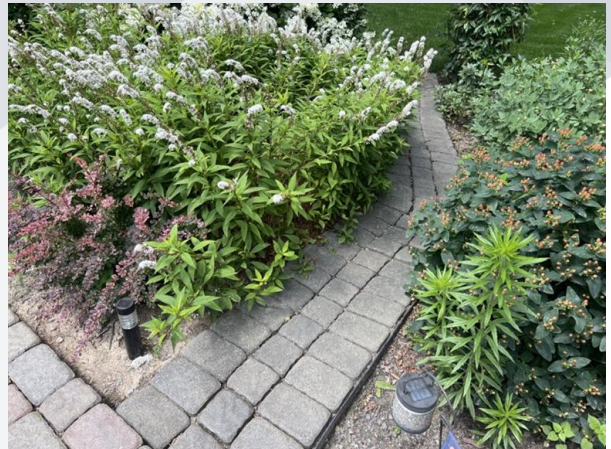
Seal pavers every two or three years.

Sealing protects pavers from environmental factors and minimizes stains. Use a sealant designed for pavers; apply sealant evenly according to the product's directions.

Weeds and moss growth in between bricks and pavers is an on-going problem for many homeowners in Victoria. It's unsightly and takes away from your homes curb appeal. Polymeric sand is the fix!

Replace pavers as required.

No matter how often you clean, you may need to replace a few pavers. It's pretty easy to replace a new stone without damaging the other stones.



Exterior Walls

Material: Vinyl

You have vinyl siding.

Vinyl siding is a durable form of plastic commonly used on the exterior of homes; vinyl is the most popular siding material in the US, installed at nearly double that of any other siding material. Vinyl comes in many colors and styles, even imitating the look of wood and other siding materials; any style from historic to contemporary is possible with vinyl siding. Vinyl is an excellent siding material because it is durable, low maintenance, and simple to obtain; vinyl also is water resistant and insect resistant.

Vinyl siding is unique in that its color is baked-in; nearly every other siding material is coated or painted. Vinyl siding's color is 100% homogeneous, i.e., the surface color runs all the way through the siding, which means that the color can't be mechanically abraded, scratched off, or stripped. If you don't want to paint the exterior of your house, vinyl siding is your dream – vinyl siding never needs painting.

Vinyl siding offers tremendous value, which means that repairs generally are inexpensive. On a materials-only basis, fiber-cement siding can cost two to four times more than vinyl siding. As an example, 24 pieces of 4 1/2-inch by 145-inch ship lap horizontal vinyl siding will cost between \$150 to \$200; comparably sized fiber-cement siding costs at least twice as much.

Vinyl siding's slippery surface means that dust, cobwebs, and other debris slide off relatively easily when sprayed down with a garden hose. Because there is no paint, you never have to scrape, patch, prime, and paint your house's exterior surface.

Like other types of siding, there are a few disadvantages to vinyl siding. Depending on climate, vinyl siding may begin to show its age after only 10 to 15 years; dark siding especially may fade. Siding planks may split or break due to expansion and contraction caused by temperature changes. Vinyl siding also may be susceptible to water penetration; siding typically is installed over a layer of styrene insulation board, which may trap water vapor within the cavity of the wall. Vinyl siding's effectiveness also depends on proper installation; a poor installation may cause troubles in the long-term, e.g., if siding is nailed too tightly, it will expand, crack, bulge, or warp.

Clean your siding annually.

You can add years to the life of your vinyl siding by dedicating a day to clean the exterior of your house. To keep your siding in good shape, hose down and scrub the siding using a mild liquid detergent with a carwash brush that attaches to a hose. Be cautious using a pressure washer; you can easily drive water behind vinyl siding. For best results, lower the pressure, work from the top down, and always direct the spray downward at the siding; never direct the spray upward.

Inspect your siding monthly.

Visually inspect vulnerable areas, especially the areas in which siding abuts other materials, e.g., around doors and windows, around gutters, downspouts, and fascia, where siding meets chimney, where siding is near grade, where siding is penetrated by pipes or other materials, etc.

Check the overall appearance of your siding. Discoloration is normal on vinyl siding due to dirt build-up and excessive exposure to



sunlight; there may be damage if one part of your vinyl siding is a different color from the rest of the siding.

Check for warped, loose, or broken panels, which need to be replaced to protect your house from water damage and further disintegration of your vinyl siding.

Check the interior ceilings and walls for water stains. Although siding damage may not be readily apparent on the outside of your house, you may find mold build-up or cracks in your interior walls resulting from cracks in vinyl siding.

Check for dried or deteriorated caulking.

Apply caulk to holes and cracks where water may penetrate the exterior of the house. Caulk as required at inside and outside corners, around window and doorframes, between badly fitting pieces of siding, where pipes and other protrusions pass through the siding, and where siding meets the foundation.

For most jobs, use latex-silicone or acrylic-silicone; do not use cheap latex-only caulk (shrinks) or pure silicone (loosens). High-quality "silicone II" generally works well and lasts a long time. For larger gaps (more than 3/8"), use aerosol foam.

Trim vegetation from exterior.

No bush, tree branches, or shrubbery should touch siding. Foliage conducts moisture that can find its way into cracks and tiny openings. Trim vegetation to comfortably walk between your house and any plant materials.

Check for breaks in the siding.

Older vinyl products may become brittle over time, resulting in breaks or cracks; heavy winds or rain may also cause breaks in your vinyl siding. Rocks can also bang up against a wall from lawnmowers or weed whackers. Cracks or breaks in the siding ruin the integrity of your house; such damages to siding may cause interior water leaks, particularly if you wash your siding with a garden hose or a power washer.

Know when to engage a professional.

Lots of us like to tackle a challenge with a hearty DIY approach. Most of us can resolve minor or uncomplicated issues. But not all of us have special skills or tools to fix a more significant problem, e.g., damaged siding. Regrettably, if vinyl siding has cracked or broken panels, the entire siding plank must be replaced. If a section of your vinyl siding is damaged, engage a siding specialist.

Exterior Walls

Material: Brick

You have a brick exterior.

Brick has been used in construction for many years, and for good reason – brick is durable, long lasting, easy to maintain, and enhances the value of your property.

Brick is strong, durable, and practically impervious to weather. Brick is naturally colored throughout because of its unique composition, which means bricks won't fade or change color. Unlike other types of siding, bricks also don't decay, or dent and termites have no appetite for baked clay.

Brick homes aren't maintenance free, but they're much easier to maintain than homes built from other siding materials. Bricks don't display signs of dirt or wear and tear as quickly as other materials, which means you won't have to clean exterior brick surfaces as often as other siding types; in most cases, brick requires an occasional squirt with a hose for the first 25 years after which there may be loose bricks or mortar joints that require repairs.

Brick also is different than other insulated siding. When bricks are placed around the exterior of a building or home, bricks provide an extra layer of insulation against exterior temperatures; heat passing through brick walls is delayed compared to other materials, which means that heat will take much longer to penetrate through the brick during summer, and heat will remain trapped inside longer during winter. Brick also offers enhanced soundproofing vs. lighter siding materials.

Bricks are more fire resistant than most other building materials; it takes much longer for bricks to catch fire because brick is made from non-combustible materials. Formation bricks are cured at 2,000 degrees F, which means bricks can tolerate very high temperatures.

Brick costs more to install than many other materials but it generally delivers a very high return on investment because brick is low maintenance and long lasting. Some estimates claim that brick enhances property value by about 6% compared to an identical house with other siding.

Like other types of siding, there are a few disadvantages to brick exteriors. Because brick homes are so solid, any movement in foundation may cause cracks in the brick, which is why it's crucial to build a brick home on an extra stable foundation. Brick construction requires a strong drainage system to avoid issues relating to water damage. Brick can be painted, but it's often a painstaking process because each groove and side of a brick has to be covered.

Inspect your brick exterior monthly.

Visually inspect your exterior, particularly vulnerable areas, especially the areas in which brick abuts other materials, e.g., around doors and windows, around gutters, downspouts and fascia, where brick meets chimney, where brick is near grade, where brick is penetrated by pipes or other materials, etc.

Check for dried or deteriorated caulking.

Apply caulk to holes and cracks where water may penetrate the exterior of the house. Caulk as required at inside and outside corners, around window and doorframes, where pipes and other protrusions pass through the exterior, and where exterior meets



the foundation.

Trim vegetation from exterior.

No bush, tree branches, or shrubbery should touch the exterior. Foliage conducts moisture that can find its way into cracks and tiny openings. Trim vegetation to comfortably walk between your house and any plant materials.

Clean your brick exterior annually.

Although brick homes are low maintenance, regular cleanings are important if you want to keep the brick exterior sparkling. Bricks and mortar are porous and prone to collecting dirt, which may lead to mold growth, especially on the sides of the house that doesn't receive much sun.

Use a high-quality brick and mortar cleaner; scrub gently with soft-bristled brush as hard scrubbing can damage brittle brick or mortar. Clean brick siding by spraying the surface with a regular garden hose fitted with a spray nozzle; do not use a pressure washer, which can damage older brick and mortar joints.

Keep weep holes clean.

A weep, a weep-brick, or a weep hole is a tiny opening which allows moisture from the wall to drain to the exterior; weeps typically are located at the bottom of the exterior. Occasionally, weep holes get clogged; if weep holes aren't clear, water can remain inside the structure and can cause water damage. Always keep a check on the weep holes and ensure these are clean.

Watch for signs of efflorescence.

Efflorescence is growth of salt crystals from brick which migrate towards the surface of the brick when water penetrates the brick. Efflorescence looks like a chalky deposit on the face of the brick. You can remove efflorescence, chalky like stains that develop on brick exposed to high levels of moisture and humidity, with full strength white vinegar. Spray stains, wait 10 to 15 minutes, then rinse with plain water from a hose.

Watch for signs of spalling.

Spalling is when the face of the bricks begins to crack off. This is typically caused by moisture getting into the brick, freezing, and then 1/8" to 1/4" of the surface separates and falls off. Affected bricks need to be replaced (or sometimes can be turned around). More importantly, the source of the moisture must be remedied.

Repoint mortar as required.

Although bricks are durable, mortar used to attach them together (pointing) can be more troublesome; mortar can wear out over time due to exposure to weather. Repointing may be needed to replace the mortar and ensure the integrity of your brick structure.

Replace damaged bricks.

Lots of us like to tackle a challenge with a hearty DIY approach. Most of us can resolve minor or uncomplicated issues. But not all of us have special skills or tools to fix a more significant problem, e.g., damaged bricks. Repairs to bricks require expertise to remove damaged bricks while leaving surrounding bricks intact. Know when you've reached a point at which you need to engage a professional. Unless you have the skills, engage a professional mason to repair the bricks.

If you have the skills, chisel out the mortar which surrounds the damage bricks and replace the bricks. Carefully clean the opening and dampen a bonding agent or water. Spread new mortar to the bottom of the opening and lay in the brick and mortar the sides and top. You can finish the new joints by simply running your fingers over the new mortar and clean off any residue.



Chimney

Material: Brick

You have a brick chimney.

A chimney is designed to keep the fireplace area warm and to exhaust smoke efficiently up the flue to the exterior. Brick chimneys are efficient – they deliver higher heat retention and reflection vs. metal chimneys. Brick chimneys are durable – they can last for many decades if they're properly maintained. And brick chimneys are beautiful – they're visually and aesthetically appealing when constructed correctly. Maintaining your chimney is crucial to keeping your home safe when you're using your fireplace.



Inspect your chimney exterior annually.

Visually inspect the exterior chimney structure, including the bricks and mortar. Check the places at which the chimney structure abuts the siding materials; sealant and caulking should be clean and flexible. Check the flashing, where the chimney meets the roof; make sure the flashing provides protection against water penetration. Check the chimney crown, a concrete cover that prevents anything, e.g., pests, from entering your home via the chimney; chimney crowns should be in good condition. If you aren't comfortable climbing a ladder, binoculars are a pretty good alternative; otherwise, it's probably best to engage a chimney specialist to perform an annual inspection.

Clean and seal your brick exterior annually.

Although brick chimneys are relatively low maintenance, regular cleanings are important if you want to keep the brick exterior sparkling. Bricks and mortar are porous and prone to collecting dirt, which may lead to mold growth, especially on the sides of the house that doesn't receive much sun.

Use a high-quality brick and mortar cleaner; scrub gently with soft-bristled brush as hard scrubbing can damage brittle brick or mortar. Clean the brick by spraying the surface with a regular garden hose fitted with a spray nozzle; do not use a pressure washer, which can damage older brick and mortar joints.

It's also important to make sure your chimney and crown are waterproofed. Adding a water sealant to the outside of your chimney helps to prevent moisture from penetrating the bricks and mortar and sneaking into your home.

Engage a chimney sweep after approximately 50 burns.

No matter the type of fireplace, you'll need your chimney swept in order to keep your home safe. How often you use your fireplace determines how often you should have your chimney swept; if the chimney liner has 1/8" of soot, it needs to be cleaned. Because it's not easy to measure soot depth, clean your chimney after approximately 50 burns. If you burn softer wood which generates more ash, engage a chimney sweep more frequently. The cleaning interval also depends on type of chimney, e.g., a gas log fireplace needs to be swept less often than a wood-burning fireplace.

Keep weep holes clean.

A weep, a weep-brick, or a weep hole is a tiny opening which allows moisture from the wall to drain to the exterior; weeps typically are located at the bottom of the exterior. Occasionally, weep holes get clogged; if weep holes aren't clear, water can remain inside the structure and can cause water damage. Always keep a check on the weep holes and ensure these are clean.

Watch for signs of efflorescence.

Efflorescence is growth of salt crystals from brick which migrate towards the surface of the brick when water penetrates the brick. Efflorescence looks like a chalky deposit on the face of the brick. You can remove efflorescence, chalky like stains that develop on brick exposed to high levels of moisture and humidity, with full strength white vinegar. Spray stains, wait 10 to 15 minutes, then rinse with plain water from a hose.

Watch for signs of spalling.

Spalling is when the face of the bricks begins to crack off. This is typically caused by moisture getting into the brick, freezing, and then 1/8" to 1/4" of the surface separates and falls off. Affected bricks need to be replaced (or sometimes can be turned around).

More importantly, the source of the moisture must be remedied.

Repoint mortar as required.

Although bricks are durable, mortar used to attach them together (pointing) can be more troublesome; mortar can wear out over time due to exposure to weather. Repointing may be needed to replace the mortar and ensure the integrity of your brick structure.

Replace damaged bricks.

Repairs to bricks require expertise to remove damaged bricks while leaving surrounding bricks intact. Unless you have extensive masonry experience, engage a professional mason to repair the bricks.

Chimney

Material: Brick

You have a brick chimney.

A chimney is designed to keep the fireplace area warm and to exhaust smoke efficiently up the flue to the exterior. Brick chimneys are efficient – they deliver higher heat retention and reflection vs. metal chimneys. Brick chimneys are durable – they can last for many decades if they're properly maintained. And brick chimneys are beautiful – they're visually and aesthetically appealing when constructed correctly. Maintaining your chimney is crucial to keeping your home safe when you're using your fireplace.



Inspect your chimney exterior annually.

Visually inspect the exterior chimney structure, including the bricks and mortar. Check the places at which the chimney structure abuts the siding materials; sealant and caulking should be clean and flexible. Check the flashing, where the chimney meets the roof; make sure the flashing provides protection against water penetration. Check the chimney crown, a concrete cover that prevents anything, e.g., pests, from entering your home via the chimney; chimney crowns should be in good condition. If you aren't comfortable climbing a ladder, binoculars are a pretty good alternative; otherwise, it's probably best to engage a chimney specialist to perform an annual inspection.

Clean and seal your brick exterior annually.

Although brick chimneys are relatively low maintenance, regular cleanings are important if you want to keep the brick exterior sparkling. Bricks and mortar are porous and prone to collecting dirt, which may lead to mold growth, especially on the sides of the house that doesn't receive much sun.

Use a high-quality brick and mortar cleaner; scrub gently with soft-bristled brush as hard scrubbing can damage brittle brick or mortar. Clean the brick by spraying the surface with a regular garden hose fitted with a spray nozzle; do not use a pressure washer, which can damage older brick and mortar joints.

It's also important to make sure your chimney and crown are waterproofed. Adding a water sealant to the outside of your chimney helps to prevent moisture from penetrating the bricks and mortar and sneaking into your home.

Engage a chimney sweep after approximately 50 burns.

No matter the type of fireplace, you'll need your chimney swept in order to keep your home safe. How often you use your fireplace determines how often you should have your chimney swept; if the chimney liner has 1/8" of soot, it needs to be cleaned. Because it's not easy to measure soot depth, clean your chimney after approximately 50 burns. If you burn softer wood which generates more ash, engage a chimney sweep more frequently. The cleaning interval also depends on type of chimney, e.g., a gas log fireplace needs to be swept less often than a wood-burning fireplace.

Keep weep holes clean.

A weep, a weep-brick, or a weep hole is a tiny opening which allows moisture from the wall to drain to the exterior; weeps typically are located at the bottom of the exterior. Occasionally, weep holes get clogged; if weep holes aren't clear, water can remain inside the structure and can cause water damage. Always keep a check on the weep holes and ensure these are clean.

Watch for signs of efflorescence.

Efflorescence is growth of salt crystals from brick which migrate towards the surface of the brick when water penetrates the brick. Efflorescence looks like a chalky deposit on the face of the brick. You can remove efflorescence, chalky like stains that develop on brick exposed to high levels of moisture and humidity, with full strength white vinegar. Spray stains, wait 10 to 15 minutes, then rinse with plain water from a hose.

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More importantly, the source of the moisture must be remedied.

Repoint mortar as required.

Although bricks are durable, mortar used to attach them together (pointing) can be more troublesome; mortar can wear out over time due to exposure to weather. Repointing may be needed to replace the mortar and ensure the integrity of your brick structure.

Replace damaged bricks.

Repairs to bricks require expertise to remove damaged bricks while leaving surrounding bricks intact. Unless you have extensive masonry experience, engage a professional mason to repair the bricks.

Exterior Doors

Material: Wood

You have a wood exterior door.

Owners enjoy wood doors because they're elegant, versatile, durable, and insulating. Wood doors have a certain elegance and class compared to other types of doors; wood doors can be painted or stained virtually any color. When properly maintained, wood doors are exceptionally durable; wood doors also minimize drafts and deliver exceptional insulation to help you to maximize energy efficiency.

Like any door that has mechanical parts, wood doors require maintenance. If wood meets moisture, wood becomes warped and misshapen, which means that you need to regularly protect your wood door with paint or stain.



Inspect weatherproofing regularly.

Doors which open to the exterior must close tightly to seal out weather. Watch carefully as you open and close a door to see if it is leaking anywhere. On a windy day, you can hold your hand or a piece of plastic food wrap near to a closed exterior door to reveal any air movement. Make sure weather-stripping is installed properly and in good condition; weather-stripping can dramatically enhance the energy efficiency of your exterior door.

You can also seal small gaps around the door's structure, including siding, trim, or drywall with caulk; if there are larger gaps, use non-expanding spray foam. You should also check the threshold structure at the bottom of the door, which can deteriorate over time due to weather and usage.

Paint, stain, or seal doors.

Exterior paint issues generally result from daily exposure to weather; wood expands and contracts with normal changes in humidity and temperature. Wood doors need to be sealed with paint, stain, or a clear sealer about every five years, depending on the door's position or location; a door under an awning or porch may need less attention vs. a door that is exposed to direct sunlight and weather. Take care when you paint an exterior door, as paint layers can cause moving parts to stick or create uneven seals; you may need to scrape or sand existing paint before applying a new coat.

If you have a natural wood door that has discolored, you can restore the wood to its original color by applying a wood cleaner or brightener. These products often are intended for use on wood decks, but they work well on natural wood doors and are available at hardware stores and home improvement centers; follow manufacturer instructions.

Tighten hardware regularly.

Moving parts that rub against each other can become worn, parts that are exposed to rain and snow can deteriorate, screws can loosen, and hardware can wear out. Many exterior door problems can be mitigated by ensuring that door hardware is properly maintained. Tighten screws regularly on your door handle or latch, door hinges, and lockset. You can silence squeaky hardware by coating it with silicone spray or light penetrating oil, e.g., WD-40.

Inspect your door regularly.

Because you use most exterior doors regularly, you'll generally notice when a door starts behaving badly. However, because you use your doors regularly, you may not notice minor changes in the door's operation over time. Therefore, you should routinely inspect the door for any damage, either to the door, weather stripping, or other components like hardware.

Here's what you should look for when inspecting your doors:

- Cracks in the frame or glass – metal doors aren't likely to have cracks in the actual door, but surrounding components might.

If you see cracks in the glass, order and install a replacement panel.

- Faded, cracked, chipped or peeling finish – refinish the door to refresh the look of your door.
- Moisture or fog between glass panels – fog or moisture indicates that the insulated seal between the glass is no longer intact and requires replacement.
- Splits or signs of moisture damage in the frame – replace the frame if you find these issues and look for the source of the moisture damage.
- Damage to the weather strip, which may include cracks, gaps, or discoloration – replace weather stripping if you notice this issue or if the stripping doesn't bounce back.
- Missing pieces, tears, and gaps in the sweep (the part at the bottom that seals gaps between the bottom of the door and the threshold. – If the sweep is in bad shape, replace the sweep.
- Damaged door stop or wedge – Install a replacement.

Beware insects and pests.

There are many insects that feed on, live in, or otherwise make use of wood – carpenter ants, carpenter bees, termites. You should also be aware of other pests, e.g., woodpeckers, nesting bats, and frequently examine the exterior for signs of attack to stop small problems before they become large problems.

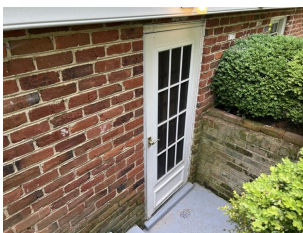
Diagnose door problems.

If you have a loose door that is leaking air, tighten the hardware and check the weatherstripping. If your door rattles or is difficult to close, you may be able to adjust the latch or move the lockset. If there is a large gap at the top or bottom, you can add a piece of wood and paint it to match the door. If you have problems with a door's fit, examine the issue carefully; the frame may have slightly shifted, which may require minor adjustments to the door. If a door binds at the lock, you can typically fix the issue by slightly readjusting the location of the hinges; a door which binds at the top requires an adjustment of the top hinge and a door which binds at the bottom requires an adjustment of the bottom hinge. If a door binds at the hinges or frame, you can typically sand or plane the surfaces to accommodate the door's fit.

Engage a door specialist as required.

Although exterior wood doors are durable and long-lasting if maintained properly, doors occasionally need to be replaced. For example, some wood doors may eventually begin to sag; you should be able to minimize sagging with proper maintenance.

Other problems may be more serious, i.e., if you have a warped door, you should replace the door. Replacing a door is straightforward, particularly if you have a knack for DIY and the fortitude to search the internet for how-to videos. Otherwise, engage a door specialist for door replacement or more serious issues.



Exterior Stairs/Steps

Material: Concrete

You have concrete exterior stairs/steps.

With any set of stairs and steps, you have one objective – to ensure that stairs and steps are safe. As a minimum first step, you need to properly maintain concrete and mitigate any deterioration or damage. Because stairs and steps are inherently hazardous, you also need to take other measures to ensure safety, including surface maintenance and proper handrails.



The majority of stairway falls results from a loss of balance, typically from slips or trips. Slips happen where there is too little friction or traction between footwear and step surfaces, e.g., wet or oily surfaces, occasional spills, weather hazards, loose or unanchored rugs or mats, and surfaces that don't have the same type of traction in all areas. Trips and falls occur when someone's foot strikes an object causing a loss of balance, e.g., clutter, uneven steps, uneven walking surfaces; trips also can occur from obstructed views or poor lighting. Another common contributing factor to trips and falls on stairs and steps is broken or damaged handrails.

Minimize slipping hazards.

To reduce the risk of slipping, keep stairs and step surfaces clean. Clean up spills, wet spots, mildew, or any debris (e.g., leaves, sticks) immediately. Scrub stains using a mild detergent mixed with water. Use a wire brush to remove stains. Test the brush and detergent in an obscure area to test for damage to the bricks before using it in a highly visible area. Wash away the detergent completely after cleaning.

To minimize slipping on ice or snow, use rock salt or potassium chloride to melt ice or snow. Avoid using salt or de-icing agents that have a chemical base; they're highly corrosive and damage the surface of your stairs.

You may also consider adding non-slippery surfaces on the whole steps or at least on the leading edges, e.g., slip-resistant sealant, rubber, or metal.

Minimize tripping hazards.

To reduce the risk of tripping, keep stairs and steps free from trip hazards, e.g., broken or deteriorated concrete, loose mortar. Make sure that nothing is sticking out the surfaces of stairs, handrails, or bannisters (e.g., nails, splinters) that could cause a fall.

Exterior stairways also need to be visible in the dark; you should use angular lighting and color contrast to improve depth perception, as well as matte finishes on the treads to avoid glare. You can easily add solar lighting to enhance lighting on stairs and steps.

Test your handrails regularly.

The prime function of any handrail is for holding as support while going up or down stairs. Handrails must be "graspable," i.e., you should be able to grasp the rail quickly, easily, and firmly if you start losing your balance. You should be able to run your hand smoothly along the entire length without having to adjust your grip. There should also be appropriate horizontal and vertical clearances to prevent the risk of young children falling through and to not facilitate climbing. You should also remind people to grasp the handrail while ascending or descending stairs.

Repair and fill cracks quickly.

Water penetration can quickly turn even the smallest cracks into large cracks. Most cracks can be filled with a high-quality sealer. If there are larger cracks, clean the cracks and holes before filling and patching. After the compound dries, seal the entire stairway.

Seal concrete every two or three years.

Sealing protects concrete from environmental factors and minimizes stains. Use a sealant designed for concrete; apply sealant evenly according to the product's directions.

Pay attention to common red flags!

Steps and stairs may settle, shift, or deteriorate. You should inspect your exterior stairs and steps regularly and pay attention to the following common safety risks:

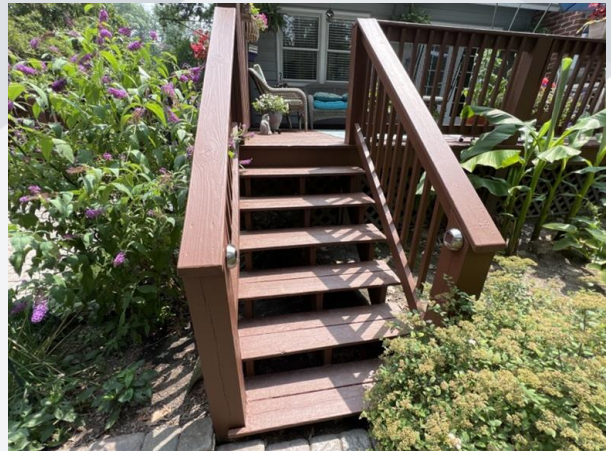
- Cracked or settled steps, gaps between steps and house.
- Loose steps, missing steps, damaged steps, deteriorated steps.
- Uneven or excessive riser height (distance from top to bottom of step).
- Inconsistent or inadequate tread runs (distance from front and rear edges of step).
- Loose rail, missing rail, damaged rail, deteriorated rail.
- Loose balusters, missing balusters, damaged balusters, deteriorated balusters.

Exterior Stairs/Steps

Material: Wood

You have wood exterior stairs/steps.

With any set of stairs and steps, you have one objective – to ensure that stairs and steps are safe. As a minimum first step, you need to properly maintain the stairs and steps and mitigate any deterioration or damage. Because stairs and steps are inherently hazardous, you also need to take other measures to ensure safety, including surface maintenance and proper handrails.



The majority of stairway falls results from a loss of balance, typically from slips or trips. Slips happen where there is too little friction or traction between footwear and step surfaces, e.g., wet or oily surfaces, occasional spills, weather hazards, loose or unanchored rugs or mats, and surfaces that don't have the same type of traction in all areas. Trips and falls occur when someone's foot strikes an object causing a loss of balance, e.g., clutter, uneven steps, uneven walking surfaces; trips also can occur from obstructed views or poor lighting. Another common contributing factor to trips and falls on stairs and steps is broken or damaged handrails.

Minimize slipping hazards.

To reduce the risk of slipping, keep stairs and step surfaces clean. Clean up spills, wet spots, mildew, or any debris (e.g., leaves, sticks) immediately. Scrub stains using a mild detergent mixed with water. Use a wire brush to remove stains. Test the brush and detergent in an obscure area to test for damage to the bricks before using it in a highly visible area. Wash away the detergent completely after cleaning.

To minimize slipping on ice or snow, use rock salt or potassium chloride to melt ice or snow. Avoid using salt or de-icing agents that have a chemical base; they're highly corrosive and damage the surface of your stairs. You may also consider adding non-slippery surfaces on the whole steps or at least on the leading edges, e.g., slip-resistant sealant, rubber, or metal.

Minimize tripping hazards.

To reduce the risk of tripping, keep stairs and steps free from trip hazards, e.g., broken or deteriorated steps. Make sure that nothing is sticking out the surfaces of stairs, handrails, or bannisters (e.g., nails, splinters) that could cause a fall.

Exterior stairways also need to be visible in the dark; you should use angular lighting and color contrast to improve depth perception, as well as matte finishes on the treads to avoid glare. You can easily add solar lighting to enhance lighting on stairs and steps.

Test your handrails regularly.

The prime function of any handrail is for holding as support while going up or down stairs. Handrails must be "graspable," i.e., you should be able to grasp the rail quickly, easily, and firmly if you start losing your balance. You should be able to run your hand smoothly along the entire length without having to adjust your grip. There should also be appropriate horizontal and vertical clearances to prevent the risk of young children falling through and to not facilitate climbing. You should also remind people to grasp the handrail while ascending or descending stairs.

Beware insects and pests.

There are many insects that feed on, live in, or otherwise make use of wood – carpenter ants, carpenter bees, termites. You should also be aware of other pests, e.g., woodpeckers, nesting bats, and frequently examine the exterior for signs of attack to stop small problems before they become large problems.

Seal surfaces every two or three years.

Sealing stairs and steps from environmental factors and minimizes stains. Use a sealant designed for the materials; apply sealant evenly according to the product's directions.

Pay attention to common red flags!

Steps and stairs may settle, shift, or deteriorate. You should inspect your exterior stairs and steps regularly and pay attention to the following common safety risks:

- Cracked or settled steps, gaps between steps and house.
- Loose steps, missing steps, damaged steps, deteriorated steps.
- Uneven or excessive riser height (distance from top to bottom of step).
- Inconsistent or inadequate tread runs (distance from front and rear edges of step).
- Loose rail, missing rail, damaged rail, deteriorated rail.
- Loose balusters, missing balusters, damaged balusters, deteriorated balusters.

Hose Faucets

Exterior faucets (or hose bibs or spigots) are outdoor taps that permit you to run water from the inside of your house to the outside. You can use exterior faucets to attach your garden hose for many different jobs outside. Exterior hose faucets require maintenance as winter approaches or if faucets are leaking.

Winterize your exterior faucets before the season's first freeze.

In colder climates, winter seeks to destroy your water pipes. The best way to minimize damage from cold weather on household plumbing is to protect pipes against freezing. Water expands when it freezes. Expanding water may rupture pipes, which can cause thousands of dollars of damage if water soaks walls, ceilings, and floors; frozen pipes may also start to leak or burst during thawing.



Therefore, it's critical to winterize your exterior faucets before each winter:

- Close interior shut-off valves
- Detach garden hoses
- Open and drain faucets
- Leave the faucets open

In the spring, simply reverse the process, i.e., close the faucets and open the interior shut-off valves.

What about freeze-proof hose faucets?

Your house may have "freeze-proof" spigots designed to shut off water inside the foundation wall, which is accomplished because the spigot is longer than the washer seats at the end of the hose bib. Frost-proof spigots come in different lengths, depending on the width of your foundation wall or point of connection inside. When the spigots are off, water drains out, minimizing the potential for freezing pipes. However, there is no guarantee that such faucets won't freeze in extreme cold, particularly if the interior where the piping connects inside is not heated. Therefore, it's best to detach hoses, close interior valves, and drain the faucets.

Add insulated covers to your hose faucets

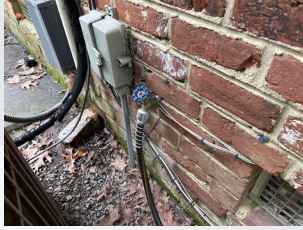
Installing covers can also help to prevent outdoor faucets from rupturing because of freezing temperatures. If there's no indoor shut-off valve, it is very important to carefully insulate the spigot from the outdoors.

Faucet covers are either square or dome-shaped shells made of rigid thermal foam with flexible gaskets that fit over outdoor faucets, or they're flexible bags made of thick fabric stuffed with insulation. Faucet covers trap heat that radiates through the interior pipes to the outdoor spigot; the insulated cover prevents heat from escaping and minimizes the risk of water freezing, expanding, and rupturing the spigot. Frost-free spigots should be covered as well—although they are resistant to freezing, they are not completely frost-proof in the coldest weather. There are rubber gaskets and washers inside the frost-free spigots that benefit from extra protection from the cold.

Vendors market exterior faucet covers as "garden faucet insulation cover" or "insulated faucet socks." For best results, seal the covers tightly to maximize thermal protection.

Check faucets for leaks.

When you're walking your exterior to review exterior walls, foundation, and grading, you should also stay aware of potential faucet leaks. Check spigots for leaks and drips. If you find any problems, it is important to repair or replace the fixture before the first freeze. Dripping water indicates a spigot with a leaky washer or cartridge, which can block up and freeze in the spigot or in the source pipe.



Porch

Material: Wood

You have a wood porch.

People love porches for lots of reasons. An impressive front entry is a critical aspect of curb appeal; real estate agents often mention the importance of the front entry in photo listings and buyer visits. A porch also provides great protection for your door, hardware, trim, lighting, and interior; your guests will appreciate a porch on rainy days. Best of all, a porch is a perfect meeting place for neighbors, friends, and family – it's like an outdoor room, a special place to unwind and watch the rest of the world whirl by!

In addition to enjoying your porch, you have two objectives: maintain your porch and make sure it's safe. You need to properly maintain wood and mitigate any deterioration or damage; wood is especially susceptible to water penetration and wood-destroying insects, e.g., termites. You also need to take other measures to ensure safety, including surface maintenance and proper handrails, if required.



Minimize slipping hazards.

Keep stairs and step surfaces clean. Clean up spills, wet spots, mildew, or any debris (e.g., leaves, sticks) immediately. Scrub stains using a mild detergent mixed with water. Use a wire brush to remove stains. Test the brush and detergent in an obscure area to test for damage to the bricks before using it in a highly visible area. Wash away the detergent completely after cleaning. Clean your porch regularly, including surface, stairs, and steps. You may also consider adding non-slippery surfaces on steps or at least on the leading edges, e.g., slip-resistant sealant, rubber, or metal.

Minimize tripping hazards.

To reduce the risk of tripping, keep surface, stairs, and steps free from trip hazards, e.g., deteriorated surfaces, damaged steps. Make sure that nothing is sticking out the surfaces of stairs, handrails, or bannisters (e.g., nails, splinters) that could cause a fall.

Exterior stairways also need to be visible in the dark; you should use angular lighting and color contrast to improve depth perception, as well as matte finishes on the treads to avoid glare. You can easily add solar lighting to enhance lighting on stairs and steps.

Test your handrails and guardrails regularly.

If your porch requires handrails or guardrails, you should test the rails regularly. The prime function of any rail is for holding as support while going up or down stairs. Rails must be "graspable," i.e., you should be able to grasp the rail quickly, easily, and firmly if you start losing your balance. You should be able to run your hand smoothly along the entire length without having to adjust your grip. There should also be appropriate horizontal and vertical clearances to prevent the risk of young children falling through and to not facilitate climbing. You should also remind people to grasp the rail while ascending or descending stairs.

Beware insects and pests.

There are many insects that feed on, live in, or otherwise make use of wood – carpenter ants, carpenter bees, termites. Consider engaging a licensed exterminator to apply insect repellent to the exterior annually. You should also be aware of other pests, e.g., woodpeckers, nesting bats, and frequently examine the exterior for signs of attack to stop small problems before they become large problems.

Seal surfaces every two or three years.

Sealing protects surfaces from environmental factors and minimizes stains. Use a sealant designed for concrete; apply sealant evenly according to the product's directions. If there is other damage, consider engaging a mason to perform the repairs.

Pay attention to common red flags!

Your porch structure, surface, steps, or stairs may settle, shift, or deteriorate. You should inspect your porch regularly and pay attention to the following common safety risks:

- Cracked or settled slab and steps, gaps between porch and house, portions undermined.
- Loose floorboards, missing floorboards, damaged floorboards, deteriorated floorboards.
- Loose steps, missing steps, damaged steps, deteriorated steps.
- Leaning posts or columns, damaged or deteriorated posts or columns.
- Missing or damaged flashing where the porch attaches to the house.
- Damaged or deteriorated roof structure.
- Uneven or excessive riser height (distance from top to bottom of step).
- Inconsistent or inadequate tread runs (distance from front and rear edges of step).
- Loose rail, missing rail, damaged rail, deteriorated rail.
- Loose balusters, missing balusters, damaged balusters, deteriorated balusters.
- Ledger board not properly bolted to the house; support posts inadequately attached to house.
- Damaged or deteriorated post base or piers.
- Inadequate cross-bracing, diagonal braces aren't properly bolted to the structure.
- Damaged or deteriorated connector hardware, improper hardware.
- Split or spliced beams which aren't supported with a post and footer at the joint.
- Damaged or deteriorated floor joist, improper hanger hardware, missing fasteners.

Deck/Balcony

Material: Wood

You have a wood deck/balcony.

Did you know that there are over 30 million residential decks in the USA? Decks and balconies are popular because a deck adds lots of aesthetic appeal to the exterior of your home while adding value to your property.

During warmer months, a deck can essentially extend the usable space of your home for activities like eating, relaxing, and cooking on the grill. When you add patio furniture, bird feeders, and potted plants, decks provide a place to enjoy nature on your property; many decks also have usable space underneath, an ideal place to store outdoor equipment that may otherwise clutter your yard or garage. Best of all, decks are a great place to throw summer parties, barbeques, and family get-togethers.



In addition to enjoying your deck or balcony, you have two objectives: maintain your deck/balcony and make sure it's safe. You need to properly maintain wood and mitigate any deterioration or damage; wood is especially susceptible to water penetration and wood-destroying insects, e.g., termites. You also need to take other measures to ensure safety, including surface maintenance and proper handrails.

Minimize slipping hazards.

Keep stairs and step surfaces clean. Clean up spills, wet spots, mildew, or any debris (e.g., leaves, sticks) immediately. Scrub stains using a mild detergent mixed with water. Use a wire brush to remove stains. Test the brush and detergent in an obscure area to test for damage to the bricks before using it in a highly visible area. Wash away the detergent completely after cleaning. Clean your deck regularly, including surface, stairs, and steps. You may also consider adding non-slippery surfaces on steps or at least on the leading edges, e.g., slip-resistant sealant, rubber, or metal.

Minimize tripping hazards.

To reduce the risk of tripping, keep surface, stairs, and steps free from trip hazards, e.g., deteriorated surfaces, damaged steps. Make sure that nothing is sticking out the surfaces of stairs, handrails, or bannisters (e.g., nails, splinters) that could cause a fall.

Exterior stairways also need to be visible in the dark; you should use angular lighting and color contrast to improve depth perception, as well as matte finishes on the treads to avoid glare. You can easily add solar lighting to enhance lighting on stairs and steps.

Test your handrails and guardrails regularly.

If your deck requires handrails or guardrails, you should test the rails regularly. The prime function of any rail is for holding as support while going up or down stairs. Rails must be "graspable," i.e., you should be able to grasp the rail quickly, easily, and firmly if you start losing your balance. You should be able to run your hand smoothly along the entire length without having to adjust your grip. There should also be appropriate horizontal and vertical clearances to prevent the risk of young children falling through and to not facilitate climbing. You should also remind people to grasp the rail while ascending or descending stairs.

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There are many insects that feed on, live in, or otherwise make use of wood – carpenter ants, carpenter bees, termites. Consider engaging a licensed exterminator to apply insect repellent to the exterior annually. You should also be aware of other pests, e.g., woodpeckers, nesting bats, and frequently examine the exterior for signs of attack to stop small problems before they become large problems.

Seal surfaces every two or three years.

Sealing protects surfaces from environmental factors and minimizes stains. Use a sealant designed for wood; apply sealant evenly according to the product's directions.

Pay attention to common red flags!

You've probably seen videos of epic deck failures, most of which occur because of poor installations or poor maintenance. Even professionally installed deck structures may settle, shift, or deteriorate over time, causing problems with decking, steps, stairs, or railings.

If you have identified any of the following red flags, it's probably a good idea to engage a deck specialist. Inspect your deck regularly and pay attention to the following common safety risks:

- Deteriorated sealant.
- Loose floorboards, missing floorboards, damaged floorboards, deteriorated floorboards.
- Missing flashing, damaged flashing, deteriorated flashing.
- Missing supports, damaged supports, deteriorated supports
- Missing hanger hardware, damaged hardware.
- Missing footings, damaged footings, deteriorated footings.
- Missing piers or posts, damaged piers or posts, deteriorated piers, or posts.
- Missing joists, damaged joists, deteriorated joists.
- Loose rails, missing rails, damaged rails, deteriorated rails.
- Loose balusters, missing balusters, damaged balusters, deteriorated balusters.
- Unstable deck, sagging deck, leaning deck, deck separated from house.
- Damaged or deteriorated roof structure.

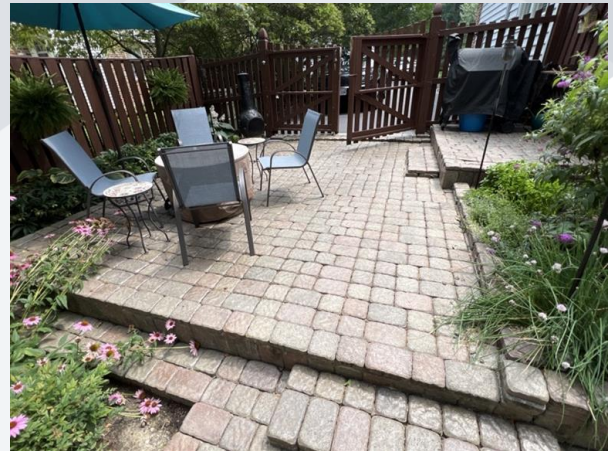


Patio

Material: Pavers

You have a patio constructed of pavers.

Pavers are outstanding for aesthetic appeal and stylistic diversity. There are many different types of pavers, each of which requires maintenance. Brick pavers can be damaged and require frequent attention. Concrete pavers experience color fade and can crack because of extreme temperature fluctuations. Bluestone has a uniquely beautiful blue color but it's also expensive. Gravel or grass-filled plastic pavers are durable and are generally eco-friendly pavers because they're sourced from 100% recycled plastic.



Fill cracks with polymeric sand.

Polymeric sand is a blend of properly graded fine sand and a binder compound (polymer) that is specially formulated for filling in the joints between bricks, pavers, and natural stones for hardscapes. Polymeric sand hardens when moistened, which helps hold pavers in place and prevents weeds from growing between pavers. Do not use cheap polymeric sand. Do not use regular sand.

Remove weeds and growth between pavers.

Weeds and moss growth in between pavers is an on-going problem for many homeowners; weeds and growth are unsightly and reduces your home's curb appeal. Remove the weeds and fill gaps with polymeric sand.

Spray pavers to wash away grime.

Don't spray directly into the joints, which can disrupt the sand. Be careful using a power washer as it may remove sand from in between the joints of the paving stones; if power-washing deteriorates sand, fill the joints with polymeric sand after the patio dries.

Scrub stains using a mild detergent mixed with water.

Use a wire brush to remove stains. Test the brush and detergent in a hidden area to test for damage to the pavers before using it in a highly visible area. Wash away the detergent completely after cleaning.

Seal pavers every two or three years.

Sealing protects pavers from environmental factors and minimizes stains. Use a sealant designed for pavers; apply sealant evenly according to the product's directions.

Weeds and moss growth in between bricks and pavers is an on-going problem for many homeowners in Victoria. It's unsightly and takes away from your home's curb appeal. Polymeric sand is the fix!

Replace pavers as required.

No matter how often you clean, you may need to replace a few pavers. It's pretty easy to replace a new stone without damaging the other stones.

The logo for 'ROOF' consists of a stylized house icon followed by the word 'ROOF' in a bold, uppercase, sans-serif font, all contained within a dark blue rectangular box.

Roof

Material: Fiberglass Architectural Shingle

You have a fiberglass architectural shingle roof covering.

Your roof covering is among the largest and most expensive investments in your home, and asphalt architectural shingles are among the finest roof coverings. Because replacement may be costly, your primary objective is to focus on maintenance to maximize the life of your roof covering.

Fiberglass is a popular roofing shingle. Fiberglass shingles are made of a woven fiberglass base mat, covered with a waterproof asphalt coating, and topped with ceramic granules that shield the shingles from harmful UV rays. Because of the composition of the fiberglass mat, less asphalt is needed to give the shingles their durability and strength, making them a lighter and more environmentally friendly option than traditional organic-mat asphalt shingles. Fiberglass roofing is a tough and very resilient material that is non-porous, doesn't change shape, and won't dry out. Architectural shingles have a heavier base mat and multiple layers of shingles, which makes for a multi-dimensional look. They are stronger, more attractive, and more expensive.

Depending on installation, climate, and position of your home, asphalt shingle roof coverings should last 20 to 30 years – how well you maintain your roof covering also can materially the life of the roof covering.

Pay attention to your roof covering.

Inspect your roof covering regularly for abrasion, damaged shingles, and missing shingles, particularly after high winds, heavy rainstorms, or hailstorms.

Do not climb on your roof to examine the roof covering! Climbing on your roof may damage or abrade the covering and it's a significant safety risk. Invest in a pair of high-resolution binoculars, which can give you almost as good a view as if you were walking the roof. You can also get a close-up view of your roof covering from adjacent windows or an extended ladder at various points along the eaves. If you tinker with tech, consider investing in a drone and a high-resolution video camera attachment; a drone may be superior to walking a roof because a drone can typically access places that can't be walked because of location or pitch.

Repair damage quickly.

Granule loss and gradual deterioration are part of normal roof wear. However, if shingles are inordinately worn, damaged or missing, fix them quickly; otherwise, water penetration into your roof structure could cause bigger challenges. Single shingles are simple and inexpensive to replace; depending on the location and pitch of the roof, you may be able to replace the shingles if you have the skills. However, for the majority of roof covering challenges, you should engage a professional roofer.

Replace sealant as required.

Replace the roof sealant as needed. Inspect every area of the roof with sealant and identify signs of cracking or wear and tear. You may need to remove old sealant completely and apply new sealant. As mentioned earlier, it's not a good idea to walk the roof to find missing or damaged sealant. Engage a professional roofer.

Inspect for rust and corrosion.

If your roof has any metallic parts, check regularly for rust and corrosion. If you notice rust developing, use a wire brush to remove



the rust, prime the area, and paint the metal.

Trim overhanging branches.

Branches hanging too closely to, or directly above your roof, need to be trimmed. Falling leaves or branches may collect on the roof, retain moisture, and start to rot your covering, making it weaker. Without quick action, debris may abrade the covering and permit water penetration, resulting in damage to the entire roof structure.

Clean your gutters.

It may seem strange to refer to gutters when discussing maintenance of roof coverings, but gutters that clog up can cause damage to your roof. Water accumulating in gutters can penetrate under your roofing structure. Keeping your gutters clean and in good repair helps them to serve their intended purpose while minimizing dangers to your roof.

Maintain your chimney.

It may also seem strange to refer to chimney when discussing maintenance of roof coverings, but poorly maintained chimneys can have an adverse impact on roofing. If you notice cracked or missing mortar on/in your chimney, replace the mortar, which holds masonry in place. Damaged mortar may permit masonry to fall onto your roof covering.

Engage a roofer to inspect your roof every couple of years.

As often as you may inspect your roof covering, you may not notice something that a more experienced specialist would discover. Engage a roofer every couple of years to identify existing problems and potential problems. The roofer will look for biological growth such as blue algae and plant debris as well as damaged shingles, chimney problems, or gutter issues.

Understand common repairs.

If your roof inspection identifies problem spots that require repair, initiate repairs immediately. Minor roof repairs performed in a thorough and timely manner will minimize more expensive and serious repairs. Examples of common roof repairs include installation of valley flashing due to corrosion and replacing flashing around the roof vent, chimney, and other installations. Gutters and downspouts might require caulking, patching or the application of roofing cement to prevent sagging and remedy corrosion. Broken, missing or buckled asphalt shingles are also common repair issues.



Flashing

Flashing is protective metal designed to prevent water from penetrating your house's structure. Flashing is used to seam different sections of a roof together, e.g., roof to exterior wall, roof to chimney, etc. Flashing also is installed in places in which something from the interior, e.g., stove pipe, skylights, etc. Flashing metal is very thin and is available in different materials: aluminum, copper, lead, PVC, galvanized steel.

Without properly installed flashing, water may penetrate your exterior to the structure, roof sheathing and underlayment, chimney, and other parts of your house. Some issues require professional intervention, but if you're patient and willing to invest in a DIY project, you may be able to fix the issue yourself. Flashing is simple to repair if you know what you're doing, but when it's been installed improperly, or you don't know how to do the work, engage a roofing expert.



Inspect your flashing.

While you're inspecting your roof covering, pay particular attention to the areas which require flashing. Check your flashing to see if it's loose or has any holes or leaks – normal wear and tear, hailstorms, and high wind may cause flashing to deteriorate or displaced. If you check your flashing regularly, you'll notice issues that require repair, and you can often spot the problem before significant damage occurs.

If there's a leak around a chimney or at the corners of your roofing, it's often because of flashing issues. If you notice any leaks in your house, enter your attic to see if you can identify the exact location of water penetration. If you think there's an active leak, consider engaging Insight Inspections to visit and evaluate the area using infrared, which identifies temperature differentials, e.g., cold water on warm surfaces.

Repair loose or missing flashing.

It's common for flashing to become loose or even removed from your home over time. Anchor screws or nails may become loose and pull out, or metal may wear away from around the edge of the cavity or structure at which the flashing was initially installed. If flashing is loose or missing, it is unable to properly protect your home's structure.

If flashing is loose, use screws made of the same metal as the flashing and screw them into the framing underneath to lock the flashing into place. Cover each screw head using roofing cement, to keep water from getting into your home.

Even though flashing is designed to be weather-resistant, corrosion or wear may cause small holes to appear. You may not have to completely replace the flashing – you may be able to fill the hole. Wipe away sharp edges and corrosion using a stiff-bristled brush, cut a piece of flashing that's several inches larger than the hole, and use roof cement to secure the piece on top of the hole. Add another coating of roof cement around the outside edges of the patch to form a water-tight barrier.

Re-caulk chimney flashing.

Flashing is integrated into chimney mortar to form a waterproof barrier. Over time, the mortar may crack and crumble and need to be updated to continue providing protection. You can remove cracked mortar using a chisel and apply a new layer of mortar caulk. Be careful to cover the flashing entirely and fill in the chimney gap completely between the brick or stone.

Repair leaking seams.

If flashing was initially installed properly, you can repair a leaking seam using roofing cement in most instances. Push the seam down, secure in place with screws if required, and apply roofing cement around the edges of the flashing for a watertight seal.





WATER CONTROL

Grading

The purpose of grading your yard is to direct water and runoff to a different location. Although some grading is designed to reduce wet areas in your yard, which harbor breeding grounds for mosquitoes, the vast majority of grading is focused on ensuring that your lawn slopes away from the house so that water doesn't pool next to your foundation and penetrate into the structure. It takes a few years for soil and grading to settle after new home construction.

Grading is an important issue because if it is not done properly, runoff may be directed toward your foundation. If you have water leaking into your basement, it's likely from improper run-off, e.g., damaged or deteriorated downspouts, improper downspout extensions, poorly located downspouts, improper grading. Most water penetration issues into foundations are caused by improper drainage or water run-off.



Add downspout extensions.

Your downspouts run down the side or corner of a house and stop just above the ground; a downspout elbow may have been added so that water doesn't stream alongside your foundation. However, it's important to move water further away from your house. Adding downspout extensions is the easiest, fastest, and least expensive way to move water away from your house. Downspout extensions are flexible plastic tubes that attach to the end of a downspout and will direct water another 4' from your house.

Check your slope.

Grading should be sloped down and away from your foundation by about 6" for the first 10' (which translates to a slope of about 5%). To find the slope away from your foundation, collect the following supplies:

- 12' of string
- 2 wooden or metal stakes
- String level (designed to fit on a piece of string)
- Tape measure

Using the above supplies, take the following steps to check your slope:

- Tie one end of the string on the first stake, insert the stake next to your foundation, and slide the string to the bottom of the stake so that the string rests at ground level
- Tie the other end of the string the second stake, measure 10' away from the foundation, and insert the stake into the ground.
- Place the string level on the middle of the string between the stakes and adjust the string up or down on the second stake to make the string exactly level.
- Measure the distance from the ground to the string on the second stake – if the measurement is at least 6", your slope should sufficiently direct water away from your foundation.

Make sure to check your slope in numerous areas around your foundation!

Regrade your slope as required.

If your slope is less than 6" from foundation to 10' away from your foundation, you should regrade by adding fill or topsoil near the foundation and tamping it down. Make sure to check your regrading frequently for the few months after regarding, and particularly after heavy rains.

Plant grass or install sod in bare spots.

Grass slows water run-off and helps soil to absorb water. If there are bare spots around your foundation or in parts of your lawn,

plant grass or install sod.

Walk the exterior after heavy rains.

Walk the exterior after heavy rains to make sure the grade is properly draining water away from your house. Watch carefully for standing water at or near exterior walls; standing water can cause soil to shift and permit the walls to shift.

- Separation of soil or cracking soil – if soil separates from the foundation or cracks, there may be improper settling of soil against the wall and permit water penetration into the structure; fill in open spaces.
- Water pooling at or near your foundation – depressions in the ground around your foundation can lead to pooling and permit water penetration into the structure; fill in open spaces.

Caution with landscaping barriers.

Installing barriers (retaining walls, landscaping timbers, vertical plastic edging, stones) may damage your attempts to control water because barriers don't just hold flowers and mulch – barriers block drainage. If you add landscape timbers or edging, make sure downspouts extend beyond the barriers.

Aerate your lawn.

Aerating is a common practice that helps keep your lawn in its best condition. Aeration creates holes in the lawn to introduce air and nutrients and it breaks up compacted soil. Aeration also has another benefit – it promotes yard drainage. Rather than pooling on the lawn, water trickles down through thousands of holes.

Add a French drain.

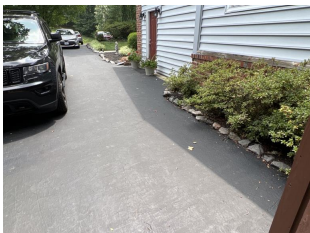
Surface water that moves across a lawn can be difficult to control, especially if it's originating from off of your property. Adding a French drain is a low-cost way of managing surface water; a French drain is a trench filled with permeable materials, e.g., gravel on a perforated PVC pipe. Water flows through the gravel and into the PVC pipe, which shifts the water away from your house or other areas that may require better drainage.

Add a yard drain.

For stubborn wet areas in your yard, consider adding a yard drain. Yard drains are built directly into the ground, at places where flooding has previously been identified. Acting much like shower or bathtub drains, yard drains are passive channels for any water that comes their way. Yard drains move the water through hidden pipes to a termination point such as a dry well.

Engage a landscape professional.

If your DIY project doesn't deliver the planned results or if you want the help of a professional, consider engaging a landscape professional. Landscape planners, architects, and designers will help you to help identify and plan how a yard will be used, work with you to control and manage water run-off, identify plantings most appropriate for installation, and provide recommendations for hardscaping options, including material considerations.



Gutters/Downspouts

Material: Aluminum

You have aluminum gutters.

Your gutters are responsible for water management. During storms, gutters channel water flow from your roof through the downspouts and direct the water to areas outside the home. Too much water falling too close to your home can erode the soil around it, compromise the home's foundation and permit water penetration into the basement or crawl space.

Your gutters protect the foundation of your home, prevent erosion, protect your landscaping, and prevent basement flooding. Gutters prevent staining to the exterior of your home, mitigate paint damage, and stop mold and mildew growth.



Gutter systems consist of two parts: i) gutters that run horizontally along the roof edge to collect runoff and ii) downspouts that carry the collected water to grade level. Gutters should slope down toward the downspout at the rate of 1/16-inch per foot or 1/4-inch per 5 to 10 feet. A smaller angle won't permit water to move properly; a larger angle will cause water to move at too great a speed, resulting in overflow over end caps and corners.

Aluminum is the most popular choice for gutters. It won't sag, it's light and easy to handle, and it won't rust, although it can corrode from long term exposure to moisture and salt. Aluminum gutters should last for 20 years or longer. Aluminum gutters may leak around the joints compared to some other types, e.g., steel. Most aluminum gutters come with an enamel coating that gradually wears away; to keep your gutters looking good, you'll need to paint them at some point.

Regardless of type of gutter, proper maintenance helps to protect your foundation; you can also extend the life of your roof.

Inspect gutters and downspouts regularly.

Check gutters for any signs of rust, cracks, or holes. Check for nails or bolts that have become loose. Check for leaking joints and check for any loose, missing or bent gutter hangers. Check the connections between gutters and downspouts. Check to make sure that downspouts remain properly attached to the house. You can mark problem areas with masking tape so you can go back to them quickly if you want to make repairs.

The easiest way to check gutters is from adjacent windows. You can also inspect gutters from a ladder placed safely at the eaves. You can even place a ladder at the eaves and insert a garden hose in the gutters and downspouts to test the system. If you don't have a ladder or ready access to water or don't relish the thought of climbing a ladder with a water hose, just wait for a heavy rainstorm. Put on your raincoat and galoshes and walk the exterior to watch for any overflow issues.

Clean gutters as required.

Gutters and downspouts can get clogged with leaves and debris that hinder the proper operation of the system, so keeping them clean and flowing freely is essential. Gutter clogging is especially likely at certain times of the year, such as in the spring when trees are casting seeds, and in the autumn when leaves are falling.

If gutters need to be cleared, observe common-sense safety precautions, and enlist a ladder spotter when using a ladder to reach the gutter system. Always maintain three-point contact and don't over-reach; move the ladder instead. Wear footwear with gripping treads to prevent slipping; wear gloves to protect hands and arms from sharp debris, as well as from animals and insects that may be hiding in the gutters.

Place a garden hose in the gutters and downspouts to flush them out, making sure that the water is directed away from the home via the downspouts.

Exterior Drains

Type: Basement Stairwell

You have a basement stairwell drain.

The purpose of your basement stairwell drain is to properly drain water run-off to prevent water from accumulating at the bottom of the stairwell and penetrating your basement.

Check your water control systems.

Most run-off can be minimized by ensuring that your water control systems are operating properly, including your gutters, downspouts, downspout extensions, and grading. Check other water prevention techniques to make sure they're all working together to direct water away from your house and basement stairs.

Maintain your drain.

Basement stairwell drains can be overwhelmed with water if your drain gets covered with debris, e.g., mulch, leaves, dirt. Clean your stairwell drain cover and interior drain structure regularly to ensure that the cover remains free of debris.

Add a drain cover.

If your stairwell drain is missing a cover, consider adding a drain grate or permeable entry mat over the drain, which permit water to flow freely while capturing larger objects, e.g., leaves.

Unclog your drain.

If your drain is clogged, try a drain snake or flushing with a high-pressure hose. If silt has accumulated and hardened over time, you may need to break away concrete to access the drain.

Add an awning.

If your stairwell is situated in such a manner that accommodates adding a covering to prevent rain from directly falling on the stairs, consider adding an awning or other structure to cover the stairwell.

Add a dedicated sump pump.

In extreme cases in which all other methods fail, consider adding a dedicated sump pit and pump at the base of your stairs.

Engage a plumber.

Engage a plumber to help you to understand other options.



Window Wells

Type: Drainage Control/No Egress

You have a window well for drainage control.

A window well is essentially a hole constructed around a window that is located below floor level, e.g., basement window. Window wells are curved or rectangular galvanized steel or polyethylene shields that attach to the side of the house, supporting the earth and blocking debris, leaves, and moisture from reaching your basement window.

Older basements tended to keep windows small and at a minimum; low light and controlled temperatures were helpful for long-term storage, e.g., canned goods, root vegetables, and other items. Newer homes extended the concept of a basement beyond storage; such basements generally have larger windows and more windows.



Basements that are fully underground required exterior excavation, referred to as a window well, which brings air and light to the basement. The term "window well" also refers to a structure that is attached to the side of your house that acts as a retaining wall to hold back soil.

Most window wells require covers to keep out debris, landscaping materials, and run-off. Most window well covers are half-circular, bubble-shaped, or rectangular transparent plastic (polycarbonate) shields that attach to the top of window wells. Window well covers are not waterproof but they're designed to keep out most moisture. Well-designed window well covers also can help to save energy because they can also help to block the wind.

Check your water control systems.

Most run-off can be minimized by ensuring that your water control systems are operating properly, including your gutters, downspouts, downspout extensions, and grading. Check other water prevention techniques to make sure they're all working together to direct water away from your house.

Clean out your window well regularly.

Because window wells are below ground, dirt and debris may tend to collect in the well, which may gradually fill up with leaves, grass clippings, or wind-blown garbage. Debris that collects in your window well likely also will block your window well drain and permit flooding in the well and possible water penetration into your window.

Test your window well drain regularly.

Window wells can have internal drainage systems or external drainage systems. An internal system directs water to a sump pump which directs the water away safely. An external system diverts water directly to your perimeter drain, a passive drainage system comprised of a series of perforated pipes around the exterior of your home. You should test your window well drainage system at least semi-annually or more often depending on the landscaping around your house. You can use a hose to test and flush the window well drainage system.

Invest in a window well cover.

If your window well is open, consider adding a window well cover, which will help to prevent debris and rain from entering the window well and also help to improve safety around the window well.



A white icon of a fuel pump nozzle inside a dark blue square, set against a dark blue rectangular background.

FUEL SERVICES

Fuel Meter

Your fuel meter measures the amount of gas that you use.

The utility company installs your fuel meter between the incoming gas lines and the point of distribution at the house. The fuel meter typically is the property of the utility, i.e., the utility is required to properly maintain the meter.

You can contact your local utility company for information about reading your meter. If you're content with monthly information, your utility bills probably have all the information you need. Verify that your bills are based on actual (not estimated) meter readings. Pay attention to reading dates because time periods may vary between readings.

Fuel is commonly measured by cubic feet. You're billed by thousands of cubic feet (MCF), hundreds of cubic feet (CCF) or therms, which are approximately the same as 100 cubic feet. A meter is driven by the force of the moving gas in the pipe, i.e., the meter spins faster as gas flow increases.



Pay attention to your meter.

Check to make sure your meter is functioning properly, e.g., make sure the dials rotate or digital counter continues to increment.

Keep your meter clear of obstructions.

Inspect for rust corrosion, sounds, sulfite smells.

Overgrown shrubs, brush, ice and snow can damage the supply lines and meter, as well as making it difficult for technicians to replace, repair, or read natural gas meters.

Although most fuel meters are the property of the associated utility, you should monitor the area and contact the utility for maintenance and repair. It is common for the meter and supply lines to deteriorate from exposure to the elements; if you notice rust or corrosion accumulating along the meter and upstream line(s), contact the utility for maintenance and/or repair. Additionally, if any protective coating becomes damaged or deteriorated, you should evaluate and repair the area, if required. Frequently the areas downstream of the meter are under the homeowner's purview; maintenance should be provided by a licensed professional to avoid inadvertently damaging the lines.

Natural gas usually does not have a strong nor immediately recognizable odor. However, the utility typically includes additives which produce an unpleasant odor to warn of a potential leak. If you notice a sulfur or "rotten egg" smell around any gas supply (it doesn't have to be yours!), immediately contact the utility.

A simple line-art icon of a house with a chimney.

STRUCTURE

Foundation

Material: Concrete Blocks

You have a concrete block foundation.

A house's foundation is the load-bearing portion of the structure, built below ground, whether a basement, crawl space, or slab on grade. At a minimum, any foundation must do three things well:

- Support the structure that rests on the foundation
- Keep out groundwater
- Act as a barrier to water and soil vapor

Prior to the 1970s, nearly every house was built with a masonry foundation. After poured concrete, concrete block foundations remain a popular foundation construction option; approximately ¼ of new construction uses concrete block foundations. Builders prefer block walls because wooden structures aren't required for construction and there are many construction workers with masonry experience who can install a concrete block foundation.

Blocks rest on concrete footings that have been poured deep and wide enough to accommodate the load of the blocks and the building. Concrete block foundations are typically built using concrete blocks that are 8" x 16". Blocks are light, strong, well-insulated filled blocks insulate the house well. When steel reinforcement is used, steel adds strength to the structure. Because block walls can handle substantial weight on top of a foundation, it is preferred by engineers and architects.

There are a few disadvantages of concrete block foundations. If builders take short-cuts and don't fill every block with mortar, the integrity of the foundation may be compromised. Over time, mortar that is used to adhere blocks together may crumble and disintegrate, permitting leaks into the interior; blocks must be regularly sealed to minimize leaks.

Examine your foundation regularly.

Your foundation is your home's backbone upon which the structure is placed. Although a foundation review certainly involves examining the foundation walls, many foundation issues manifest in ways that occur elsewhere in the house, e.g., floors, doors, and windows.

- Check your interior foundation walls – Look for cracks on the interior of your basement or crawl space walls. Basement and foundation walls built of concrete block are more likely to have horizontal cracks and cracks that form stair-step like patterns; these patterns would show along mortar lines and are a common sign of settlement.
- Walk the exterior perimeter of your home – Look for cracks in the visible parts of the foundation exterior. Check foundation walls by sighting down from one end to the other; foundation walls and exterior walls should be flush and level, i.e., pay attention to areas that bulge or lean. Watch carefully for standing water at or near the exterior walls; standing water can cause soil to shift and permit the walls to shift. Walk the exterior after heavy rains to make sure the grade (slope of soil) is properly draining water away from the house. Look for any shifting, ground sinking, or other movements, especially around chimneys and patios; although most chimneys are built on a separate foundation that is not connected to the house, chimneys are at a greater risk for settlement and separation from the home.
- Walk the interior perimeter of your home – Check the interior walls of your home for cracks in drywall or plaster extending from corners of doors or windows, which may indicate issues with the foundation; cracks would be more likely in the upper levels of your house. Look for any bulging or leaning walls and floors; shifted walls and uneven floors indicate a shifting foundation. Floors also may slope if the foundation shifts; use a ball or round object to see if rolls when placed on the floor.
- Pay attention to windows and doors – Windows and doors should open and close without difficulty. Before walls may show signs of foundation issues, windows and doors likely will be difficult to open or close; if windows or doors are jammed shut or can't be easily opened, the foundation may have shifted.
- Check your pipes – Leaking from pipes is one of the leading causes of foundation problems. If there has been a leaking pipe for an extended period, consider engaging a structural engineer to assess the potential effects on your foundation.

Evaluate your water control techniques.

If you have water leaking into your basement, it's likely from improper run-off, e.g., damaged or deteriorated downspouts, improper

downspout extensions, poorly located downspouts, improper grading. Most water penetration issues into foundations are caused by improper drainage or water run-off. See grading for more details.

Repair cracks.

Although masonry can deform elastically over long periods of time to accommodate small amounts of movement, larger movements normally cause cracking, referred to as masonry cracking. Cracks may appear along the mortar joints or through the masonry units.

Most masonry wall cracks are caused by thermal or moisture expansion. Cracking can also result from a variety of other issues, including differential settlement, drying from shrinkage (particularly in concrete block), improper support over openings, the effects of freeze-thaw cycles, corrosion of iron and steel wall reinforcements, differential movement between building materials, or expansion of soils.

Foundation cracks are active or inactive. Active cracks expand in length, width, and depth over time; Inactive cracks are static and don't change. Although most cracks may occur during initial settlement over the first few years of construction, ongoing thermal or moisture expansion may continue to cause cracks in the foundation.

You can seal cracks which are 1/8" or smaller, including hairline cracks, with mortar or concrete paint or a flexible sealant. If a credit card can fit into a crack, it's larger than 1/8". You should seal the crack to avoid moisture, soil smells, or radon gas. Fill the crack with caulk that is compatible with concrete. After you fill the crack, monitor the crack, and engage a structural engineer if the crack continues to expand.

Add waterproofing.

If enhanced water control techniques and sealing are ineffective against water penetration into the foundation, consider adding waterproofing to the foundation walls. Waterproofing may be straightforward, i.e., sealing or coating the interior walls with a masonry waterproof product. Or waterproofing may be complicated, i.e., engaging a contractor to add an interior drainage system or remove soil from the exterior wall to add drains or sealant.

Foundation

Type: Basement

You have a basement foundation.

Every house is built on a foundation, but not every house is built on the same type of foundation. Foundation type is based on several factors, such as house design, geographic location, climate, and soil and moisture conditions. The three major foundation types are basement, crawlspace, or slab-on-grade.

A full basement foundation is the deepest of the three major foundation types. A full basement matches most the floor space of the level above; a basement foundation is generally at least 6' high, although newer homes typically have taller basements for living space. The primary advantage of a full basement is the extra square footage that it provides; in some homes, finishing a full basement can nearly double a home's living space. Basements also provide natural ventilation underneath your house, which can serve as an effective cooling mechanism during hot summer months.

A full basement consists of structural foundation walls that bear on foundation footings running along the perimeter of the basement. Footings usually extend below the frost line, the depth to which the ground freezes in winter. One variation of the full basement is a "daylight basement" built against a slope with one or more sides that are embedded in the ground, from floor to ceiling; as the slope descends, one or more sides of the foundation are exposed and can have large windows and doors to permit daylight.

While a basement has significant advantages, a basement foundation must be properly maintained to minimize potential water penetration issues.

A white icon consisting of three stacked, slightly offset rectangles, representing insulation or layers.

INSULATION/VENTILATION

Attic Insulation

Material: Fiberglass Batts

You have fiberglass batts insulation in your attic.

Fiberglass is the most popular type of insulation. It's inexpensive and easily installed in exposed attic ceilings. It's defensible against humid environments and it's highly durable. Fiberglass can protect your home for many years.



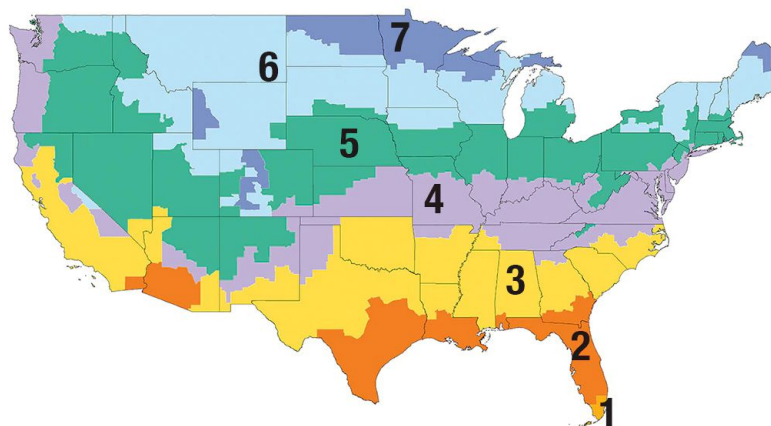
The purpose of insulation is to provide resistance to heat flow, which comes in three different flavors:

- Conduction – the way heat moves through materials (like a spoon in a hot cup of cocoa conducts heat through its handle to your hand)
- Convection – the way heat circulates through liquids and gases; it's why lighter, warmer air rises, and cooler, denser air sinks inside your home
- Radiant heat – travels in a straight line and heats anything solid in its path that absorbs its energy

Most common insulation materials work by slowing conductive heat flow and convective heat flow. Properly insulating your home will decrease this heat flow by providing an effective resistance to the flow of heat.

Insulation quality is measured in R-values per inch of thickness. An R-value indicates how well a type of insulation can keep heat from leaving or entering your home. Insulation R-values vary based on type, thickness, and density of insulation; a higher R-value translates to better climate control and better energy efficiency for your home. Your home doesn't necessarily need the highest R-value insulation; your R-value depends on your local climate.

REGIONAL R-VALUES



Zone	Attics	WALLS		Floors	Crawlspaces
		2x4	2x6		
1	R30 to R49	R13 to R15	R19 to R21	R13	R13
2	R30 to R60	R13 to R15	R19 to R21	R13	R13 to R19
3	R30 to R60	R13 to R15	R19 to R21	R25	R19 to R25
4	R38 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30
5	R49 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30
6	R49 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30
7	R49 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30

Calculate your attic insulation's R-value.

Your fiberglass batt insulation has an R-value of about 3.4. To calculate total R-value, multiply your insulation's R-value by the number of inches installed. For example, if your insulation is 10" thick, your total R-value is about R34. If attic insulation's total R-value isn't sufficient vs. total R-value recommended for your climate zone, add some insulation.

Check your insulation for water stains and infestations.

You should check your insulation regularly for water stains, particularly after heavy rains. You should also check insulation for rodent droppings or other types of pest infestations.

Replace insulation as required.

Most insulation materials can be effective for decades. Abrasions, water penetration, and pests can degrade insulation materials, rendering insulation less effective. If you don't replace your home's insulation, you may find that your home requires more energy to heat or cool.

Consider a home energy audit.

A home energy audit is an inspection survey in which the energy efficiency of your house is evaluated by a person using professional equipment (e.g., blower doors, infrared cameras). The objectives of an energy audit are to evaluate energy efficiency and to propose the best ways to improve energy efficiency in heating and cooling your house. An energy audit may help you to lower energy bills, enhance comfort, and increase the lifespan of your HVAC equipment. Some energy companies subsidize energy audits or provide credits for homeowners who have completed energy audits; check with your local energy company for more information.

Attic Insulation

Material: Loose Cellulose

You have loose cellulose insulation in your attic.

Cellulose insulation is crafted from recycled paper. Cellulose insulation is thick, dense, and clumpy, with a consistency like down feathers. The chief value of blown cellulose is that the material can fit in to tight areas and can conform around obstructions, e.g., wires, ducts. It's a green option and also is fire retardant.



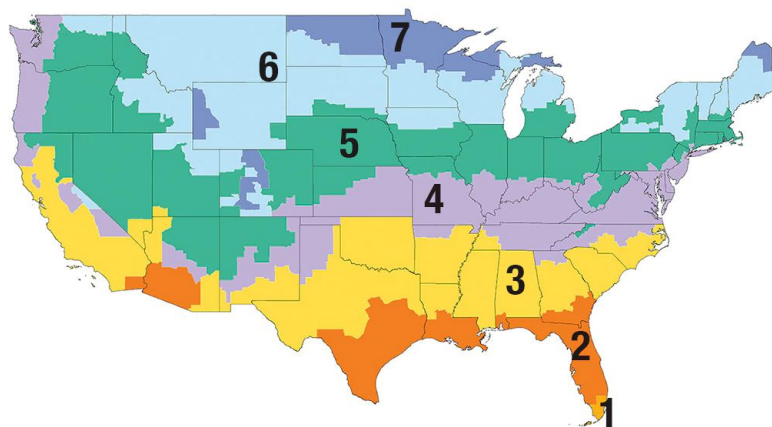
The purpose of insulation is to provide resistance to heat flow, which comes in three different flavors:

- Conduction – the way heat moves through materials (like a spoon in a hot cup of cocoa conducts heat through its handle to your hand)
- Convection – the way heat circulates through liquids and gases; it's why lighter, warmer air rises, and cooler, denser air sinks inside your home
- Radiant heat – travels in a straight line and heats anything solid in its path that absorbs its energy

Most common insulation materials work by slowing conductive heat flow and convective heat flow. Properly insulating your home will decrease this heat flow by providing an effective resistance to the flow of heat.

Insulation quality is measured in R-values per inch of thickness. An R-value indicates how well a type of insulation can keep heat from leaving or entering your home. Insulation R-values vary based on type, thickness, and density of insulation; a higher R-value translates to better climate control and better energy efficiency for your home. Your home doesn't necessarily need the highest R-value insulation; your R-value depends on your local climate.

REGIONAL R-VALUES



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Calculate your attic insulation's R-value.

Your blown cellulose insulation has an R-value of about 3.4. To calculate total R-value, multiply your insulation's R-value by the number of inches installed. For example, if your insulation is 10" thick, your total R-value is about R34. If attic insulation's total R-value isn't sufficient vs. total R-value recommended for your climate zone, add some insulation.

Check your insulation for water stains and infestations.

You should check your insulation regularly for water stains, particularly after heavy rains. You should also check insulation for rodent droppings or other types of pest infestations.

Replace insulation as required.

Most insulation materials can be effective for decades. Abrasions, water penetration, and pests can degrade insulation materials, rendering insulation less effective. If you don't replace your home's insulation, you may find that your home requires more energy to heat or cool.

Consider a home energy audit.

A home energy audit is an inspection survey in which the energy efficiency of your house is evaluated by a person using professional equipment (e.g., blower doors, infrared cameras). The objectives of an energy audit are to evaluate energy efficiency and to propose the best ways to improve energy efficiency in heating and cooling your house. An energy audit may help you to lower energy bills, enhance comfort, and increase the lifespan of your HVAC equipment. Some energy companies subsidize energy audits or provide credits for homeowners who have completed energy audits; check with your local energy company for more information.

Crawl Space Insulation

Material: Fiberglass Batts

You have fiberglass batts insulation in your crawl space.

Fiberglass is the most popular type of insulation. It's inexpensive and easily installed. Fiberglass generally is not ideal for crawl spaces because fiberglass degrades quickly in humid environments and can accommodate growth of mold and mildew. Fiberglass insulation also doesn't create a vapor barrier, which is essential to proper insulation of a crawl space.



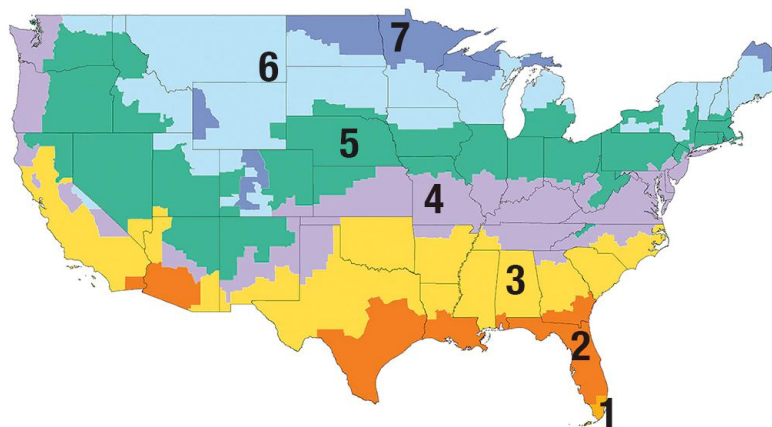
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- Radiant heat – travels in a straight line and heats anything solid in its path that absorbs its energy

Most common insulation materials work by slowing conductive heat flow and convective heat flow. Properly insulating your home will decrease this heat flow by providing an effective resistance to the flow of heat.

Insulation quality is measured in R-values per inch of thickness. An R-value indicates how well a type of insulation can keep heat from leaving or entering your home. Insulation R-values vary based on type, thickness, and density of insulation; a higher R-value translates to better climate control and better energy efficiency for your home. Your home doesn't necessarily need the highest R-value insulation; your R-value depends on your local climate.

REGIONAL R-VALUES



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3	R30 to R60	R13 to R15	R19 to R21	R25	R19 to R25
4	R38 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30
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6	R49 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30
7	R49 to R60	R13 to R15	R19 to R21	R25 to R30	R25 to R30

Calculate your crawl space insulation's R-value.

Your fiberglass batt insulation has an R-value of about 3.4. To calculate total R-value, multiply your insulation's R-value by the number of inches installed. For example, if your insulation is 10" thick, your total R-value is about R34. If crawl space insulation's total R-value isn't sufficient vs. total R-value recommended for your climate zone, add some insulation.

Check your insulation for water stains and infestations.

You should check your insulation regularly for water stains, particularly after heavy rains. You should also check insulation for rodent droppings or other types of pest infestations.

Consider replacing insulation.

You should consider replacing fiberglass insulation in the crawl space. Insulating the crawl space with fiberglass generally is ineffective for several reasons. Fiberglass insulation doesn't halt air movement, which means that crawl space air that's either too hot or too cold can easily pass through the insulation, making its way into the living space above through cracks, gaps, and holes in the floor assembly. Fiberglass also compresses easily, absorbs moisture, and tends to fall out from between joists. If this occurs, the value of the insulation is lost, and the crawl space becomes a messy, unpleasant area that's likely to support mold growth.

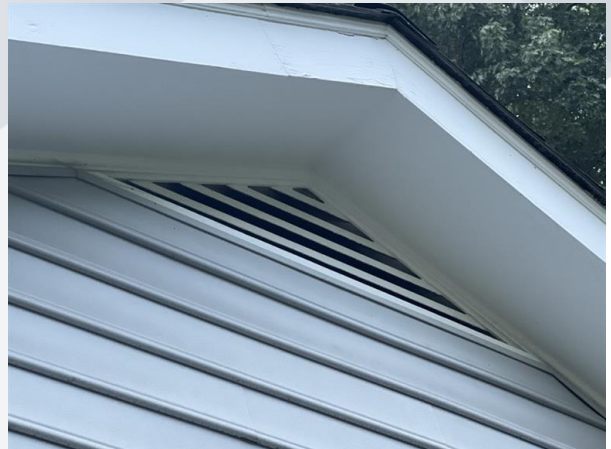
You should consider installing closed cell spray foam or foam board with seams that are carefully sealed. You should discuss best options with a professional insulation expert, who also knows local code.

Attic Ventilation

Type: Gable Vent

It's important to ventilate your attic because hot air rises and heads towards your attic space. Hot air contains moisture and if permitted to remain in your attic space, moisture from hot air can lead to mildew and eventually mold, which can degrade your attic structure and roof sheathing and have an adverse impact on your health. Roof ventilation systems help to minimize stagnant hot air in your attic space, extend the life of your roof, and enhance your energy efficiency.

Attic vents remove stagnant air from your attic space (exhaust) or bring fresh air into your home (intake). Because hot air rises, exhaust vents are generally placed near the top of your roof line. Intake vents are generally placed lower on your roof line because cooler air enters under hot air and helps to push the hot air out of the attic space. When attic ventilation is properly designed and maintained, the exhaust-intake cycle should help to control temperature and moisture in your attic.



If your attic ventilation system is not working well, one or more of the following issues may require your attention:

- Heightened moisture levels in your attic space
- Poor air quality in lower floors because of stagnant air in your attic (summer)
- HVAC systems forced to work harder to cool your upper floors
- Ice dams (winter)
- Roof sheathing deterioration

There are different types of attic vents, most of which are described below.

Ridge Vents

Ridge vents are the most common type of exhaust vent. Because ridge vents are at your roof's highest point, the vents are in prime position to permit the hottest air to escape your attic space. Ridge vents are installed across the peak of a roof and span your entire roof line, which means they generally have enough surface area for exhausting large amounts of hot air. When used in combination with intake vents near the bottom of your roof line, e.g., soffit vents, ridge vents deliver excellent vertical ventilation, which takes advantage of gravity and the natural flow of cool and hot air. Cold air comes up through the bottom and exits through the top. Vertical venting is superior to other types of ventilation, e.g., horizontal or cross-venting.

Ridge vents are installed at the top of your roof line and covered with a ridge cap shingle which is bent over the vent and nailed on. This special type of shingle is more robust and pliable than a normal asphalt shingle and is designed to match the roof.

Off-Ridge Vents

Off ridge vents are exhaust vents which are typically installed when a roof's ridge line is small, which can occur with complex roofs and houses that don't have a long, continuous ridge line. Off ridge vents are installed about 1' below the ridge line and are usually 4' long and comprised of galvanized steel. Adding one or more off-ridge vents can help to provide ventilation to certain areas.

Off ridge vents are not as effective as full ridge vents because they're smaller and aren't installed at the roof's peak. Because they're small, off-ridge vents have difficulty exhausting a large amount of hot air; their location restricts the ability to vent the hottest air, which rises to the top of the roof.

Box Vents

Box vents, also referred to as louver vents, are exhaust vents which are similar to off-ridge vents but are more common. Like off ridge vents, box vents are installed below the roof's peak. Most box vents measure 18" x 18", but there are many sizes available to

match complicated roof lines with lots of different sections.

Their small size is mostly a drawback, but does offer some versatility when compared to a ridge vent. Because they don't need to run across the entire peak of the roof, box vents can be installed strategically in smaller areas that need air vented but cannot utilize a ridge vent.

Powered Vents

Powered vents are electric-propelled fans that help to exhaust air out of your attic space. Powered vents work like a box fan placed in a window on a hot summer day. Powered vents are useful for complicated roof structures but are only effective if the vents have enough power to properly exhaust air from the attic space; some powered vents may circulate air vs. expelling air. Powered vents have to be hard-wired to your electrical system and consume energy.

Solar Powered Attic Vents

Solar powered attic vents are similar to powered vents except that solar-powered attic vents are powered by the sun and require no hard-wired electricity.

Roof Turbines

Roof turbine vents consist of aluminum blades inside an aluminum or covering; the blades rotate when pushed by wind from outside the house to pull and exhaust air from inside the attic. Roof turbines need at least 5 MPH of wind to activate and spin the interior blades, i.e., they're not effective on calm days. Even on windy days, roof turbines may not be very effective, particularly because they're often smaller than a box vent or off-ridge vent.

Cupola Vents

Cupola vents are one of the least common types of roof vents because of their cost and complexity; cupola vents were originally developed to allow air into a barn's loft to keep stored hay dry. Cupola vents operate as an exhaust and intake vent; one of the main reasons to use a cupola vent is to allow extra light into an area under the vent.

Soffit Vents

Soffit ventilation is the most popular form of roof intake venting; most new construction includes soffit vents. Soffits are intake vents that are installed directly on your eaves (roof overhang), directly under your roof line. Soffit vents have small perforations that permit cool air to flow into your attic space, where it helps push hot air out of your home through the exhaust vent. Continuous soffit vents are longer and often wrap around the entire eaves of a home; individual soffit vents made of aluminum, spaced approximately 6' apart.

Gable Vents

Gable vents utilize horizontal or cross-ventilation to help keep air circulating through the attic space. The basic premise is that air flows in on one side of the attic, then out through the other. A gable vent is used with a gable style roof because a vent can be placed on each side of the home. Gable vents are not as effective on complex roof structures because a cross breeze can be impeded by rafter beams, peaks, valleys, dormers, and other parts of the roof.

Fascia Vents

Fascia vents, or over-fascia vents, are intake vents that are designed primarily for roofs that don't have sufficiently sized eaves to fit soffit vents. A fascia vent is placed at the top of the fascia board and gutter directly underneath the starter row of shingles. The basic premise behind fascia vents is to allow air intake where the wind hits the roof, opposed to a soffit vent which relies on air rising.

Drip Edge Vents

With drip edge and fascia vents, the air intake is designed to hit the roof head-on, then pull cool air up the interior roof wall towards any exhaust vent at the roof's peak. Drip edge vents differ from fascia vents because of where they're installed. The drip edge is a roofing material that goes directly underneath the first row of shingles and is designed to help drain water into the gutters. It is generally made of a malleable metal. A drip edge vent incorporates intake into the roofing material, with small holes drilled into the drip edge or attached to the drip edge as an add-on.

Make sure your attic is well-insulated.

Your insulation is the most important factor in how well your attic retains heat in the winter. The best attic ventilation system will be rendered ineffective if your attic insulation isn't properly installed and maintained. See the insulation section to learn more about your attic insulation.

Don't close vents in the winter.

The loss of heat in your attic is only marginally affected by your vents, i.e., insulation is the most critical element of attic energy efficiency. Whether you keep your vents open or closed during the winter will have a negligible effect on your power bill; however, closing your vents may create condensation. Attic air vents should be kept open year-round.

A white icon of an electrical plug, consisting of a circle with two short vertical lines at the top and a curved tail at the bottom.

ELECTRICAL

Electrical Panel

Type: Circuit Breaker

You have a circuit breaker electrical panel.

Your electrical system begins with the power company's incoming service wires that enter your home and connect to your electrical panel. From the main service panel, current is divided into individual branch circuits, each of which is controlled by a separate circuit breaker; branch circuits start at your main service panel and distribute electricity throughout the house.



Circuit breakers protect electrical circuits by preventing overloads that can cause fires – circuit breakers interrupt the flow of electricity with switching mechanisms that are tripped by an unsafe power surge. Circuit breakers use permit electrical current to pass from a bottom to an upper terminal across a strip. If the current reaches an unsafe level, the magnetic force of the solenoid or strip becomes strong enough to trigger a metal lever in the switch mechanism, which breaks the current; other types have metal strips which can bend, triggering the switch and breaking the connection. To restore power, flip the switch back on, which reconnects the circuit.

Circuit breakers have other applications, such as ground fault circuit interrupters or GFCI, which prevents electric shock. A GFCI circuit breaks the circuit in an outlet if the current gets unbalanced. GFCIs are useful in kitchens or bathrooms, where electrocution is a risk from the use of electrical appliances near water. To restore power, touch the reset button.

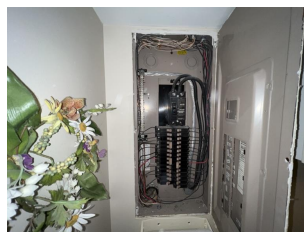
Test your main breaker shut-off.

Don't wait for the stress of an emergency to figure out how to turn off power to your house. When you occupy your home, test your main breaker to ensure that all power can be turned off with one or just a few switch flips. Make sure to coordinate your test with other occupants.

Test your branch circuits to make sure your panel labels are properly marked.

When you occupy your home, don't assume your electrical panels are labeled accurately. When you have a few hours and can enlist the help of family or friends, turn off all breakers and test the various outlets and zones for power.

You can turn on lights and test plugs with a powered device, e.g., nightlight. Or you can purchase an inexpensive plug-in outlet/receptacle tester which displays LED lights and provides instant feedback for common wiring problems, e.g., open ground, open neutral, open hot, etc. An even simpler type of tester is a non-contact voltage tester, which doesn't even need to be inserted into an outlet or to touch bare wire connections; merely bringing the sensor close to a power-carrying wire or device will cause the tool to light up or make an audible noise to indicate the presence of power.



Branch Circuits

Material: Copper

Your house has copper electrical branch circuits.

Your electrical system begins with the power company's incoming service wires that enter your home and connect to your electrical panel. From the main service panel, current is divided into individual branch circuits, each of which is controlled by a separate circuit breaker; branch circuits start at your main service panel and feed electricity throughout the house.

Your main circuit breaker, typically at the top of your main panel, controls power to your entire house. Under your main circuit breaker, there are two columns of circuit breakers which represent the start of individual branch circuits that operate electricity to different areas of your home. Most branch circuits are 120-volt circuits that supply power to standard outlets and fixtures in various rooms. There are also dedicated appliance circuits which can be 120- or 240-volt circuits and serve appliances such as electric ranges, dishwashers, refrigerators, garbage disposers, air-conditioners, and clothes dryers; generally, any appliance that has a motor requires a dedicated circuit.

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If you're especially anal retentive, you can use a marker to write the breaker number on the back of all face plates while you're testing branch circuits.

Branch Circuits

Type: Non-metallic Sheathed Cable (Romex)

You have one or more types of electrical branch circuits in your home (See Quick Reference Section)

Your electrical system begins with the power company's incoming service wires that enter your home and connect to your electrical panel. From the main service panel, current is divided into individual branch circuits, each of which is controlled by a separate circuit breaker; branch circuits start at your main service panel and distribute electricity throughout the house.

You can usually get a good look at your cables and wires at your service panel. Most homes built after 1945 have been wired with nonmetallic, which has two or three insulated wires plus a bare ground wire encased in sheathing. An older home may have armored BX cable, which has flexible metal armor or sheathing but no ground wire; the sheathing is the grounding path.

Certain types of wires are typical of certain time periods; time periods are approximate, allowing for regional differences and gradual phase out/phase in.

WIRE TYPE BY TIME PERIOD	
Wire Type	Date of Use
Knob-and-tube	1920 to 1950
Cloth-sheathed two- or three-wire cables with no ground wire	1945 to early
Cloth-sheathed cable with an integral wire	Early 1960s to 1970s
Cloth-sheathed aluminum cable with integral ground	1964 to 1978
Plastic-sheathed aluminum cable with integral ground	1974 to 1978
Plastic-sheathed copper cable with integral ground	1974 to Present

The most common distribution wiring is non-metallic sheathed cable, also referred to as NM or Romex. Non-metallic sheathed cable has a paper, cloth, or plastic (PVC) sheathing (jacket or covering).

In some areas, household branch circuit wiring is run in rigid conduit or electrical metallic tubing (EMT). The metal covering may act as the ground wire. EMT isn't conduit, having thinner walls than conduit. Conduit and EMT are good quality, but more expensive to install than NM cable.

Armored cable (AC) has a flexible metal sheathing. It is often referred to as BX, which is a popular brand name. Armored cable is suitable for dry locations only. The metal covering may act as the ground wire (equipment grounding conductor). AC was often used with furnaces, boilers and water heaters.

Insulation refers to the material wrapped around the individual wires. Insulation is designed to separate the wires within the cable. Older wires used rubber insulation, e.g. knob and tube; modern wire uses plastic insulation.

Sheathing forms around the cable, wrapping around insulated black, white, or red wires (and an uninsulated ground wire, if present). Sheathing is designed to provide physical protection for the wires and their insulation. Older wires used cloth or paper sheathing; modern wire uses plastic sheathing.

Modern wires have typically two or three conductors (black, white, red). After the mid-1960s, wires also included an uninsulated ground wire. Two-conductor-plus-ground cables are used for most normal household circuits; three-conductor-plus-ground cables

are typically used for 240-volt appliances and multi-wire branch circuits, including split receptacles.

Knob-and-tube wires are single-wire cables. Homes built from 1880 to the 1950s often still have knob and tube electrical wiring, in which electrical wires anchored by ceramic insulating knobs pass through ceramic tubes placed inside holes drilled into the wooden joists of the house. Knob and tube wiring is not inherently dangerous; dangers arise from age, improper modifications, and situations in which insulation envelops the wires. It has no ground wire and thus cannot service any three-pronged appliances. While it is considered obsolete, there is no code that requires its complete removal; however, different jurisdictions may have different requirements. If you have knob and tube wiring, you should engage an electrician with experience evaluating knob and tube wiring.

Smoke Detectors

People die every day from house fires because their smoke detectors didn't sound an alarm during a fire. Detectors usually fail because of dead batteries (or removed to prevent false alarms), the detector is past its useful life, or the detector is located where occupants can't hear the alarm. Because your life and your family's safety depend on being quick alerted to a fire, the most important safety task in your home is to ensure that your smoke detectors are properly installed and well-maintained.

Know your smoke alarm infrastructure.

Check to determine if your detectors are hardwired. Rotate the detector body to release it from its base and pull it away from the wall or ceiling. If you see wires, it's a hardwired detector, which is more dependable because it's connected to your home's electrical system. When an alarm sounds, a hardwired detector won't stop until turned off. And in case of power interruptions, hardwired detectors have battery backups for continuous operation.



Check to determine if your detectors are interconnected. Hardwired interconnected smoke detectors all sound simultaneously, even if just one detector senses a fire. You can tell if your detectors are interconnected by counting the number of wires in the detector's electrical box – interconnected hardwired detectors connect to three wires inside the electrical box. Starting in 1989, building codes required all hardwired smoke detectors to interconnect. If you have a pre-1989 home with hardwired detectors, your detectors likely aren't interconnected.

Replace outdated smoke detectors.

After you move in, you should check all of your smoke detectors. Understanding if detectors are hardwired and/or interconnected is important for when you have to replace smoke detectors. Most manufacturers recommend replacing smoke detectors at least every 10 years; check the back of a detector to verify date of manufacture.

Don't replace a hardwired detector with a battery-powered detector. Battery-powered smoke alarms depend only on batteries.

Hardwired and battery-powered wireless interconnected detectors communicate with one another via radio frequency signals (not Wi-Fi). You can retrofit your existing hardwired non-interconnected detectors with wireless interconnected units and even add new wireless detectors to build a safer fire detection system, all without running any new wires.

If your home already has hardwired interconnected detectors and you want to add more battery-powered detectors, replace one of the hardwired interconnected detectors with a bridge unit. Then install battery-powered wireless interconnected detectors. If you have any non-interconnected battery-powered detectors, replace them with the newer battery-powered wireless interconnected style.

Add smoke detectors if necessary.

Occupants have just minutes to escape in a typical home fire. Because smoke in one area may not reach a smoke alarm in another, the National Fire Protection Association (NFPA) recommends placement of at least one smoke alarm on every level of the home (including basements), in every bedroom, and outside each sleeping area. The NFPA also recommends interconnection of alarms to provide better whole-home protection than stand-alone alarms.

There are two types of smoke alarms – ionization and photoelectric. An ionization smoke alarm is generally more responsive to flaming fires, and a photoelectric smoke alarm is generally more responsive to smoldering fires. For best protection, both types of alarms or combination ionization-photoelectric alarms, also known as dual sensor smoke alarms, are recommended.

Test your smoke detectors regularly.

Pushing the test button helps to ensure that your alarms have a reliable power source. Refer to your user's manual for full instructions and a description of your detector's test sequence, which varies by model, but usually is a loud alarm sound followed by a warning. Wear ear protection and press the test button until you hear the test sequence. If the sound is weak or nonexistent, replace the batteries or the detector.

Whether hardwired or battery-powered, smoke detectors should beep intermittently if a detector senses that the battery's power has decayed. Many modern smoke detectors are voice-powered and issue verbal alerts as batteries weaken. Wi-Fi-enabled detectors and smart device apps allow you to monitor your home from anywhere. You can detector status, receive alarm notifications, and shut off a false alarm using an app.

Remember that pushing a test button only helps you to evaluate power, not whether the detector detects smoke. To fully test your detector's ability to detect smoke, you can test your alarms with a UL-certified liquid smoke detector tester ("canned smoke"). Don't test your alarms with real smoke or flames.

Recycle your old detectors.

Don't throw your old smoke detectors in the trash. Check with your local recycling organization to see if it will accept your old detectors. Many will accept photoelectric detectors but not ionization detectors because they contain radioactive material.

Establish and practice an emergency escape plan.

Smoke detectors are important for alerting you and your family about a fire. But without a fire escape plan, even the best smoke detectors can be rendered ineffective. Your ability to get out of your home during a fire depends on advance warning from smoke alarms AND advance planning. Make sure everyone in the home understands the sound of the smoke alarm and knows how to respond.

- Walk through your home and inspect all possible exits and escape routes. If you have children, consider drawing a floor plan of your home, marking two ways out of each room, including windows and doors. You should test your plan at least quarterly, particularly if you have children.
- Check to make sure escape routes are clear, and doors and windows can be opened easily. Ensure that everyone knows to close doors during fires; a closed door may slow the spread of smoke, heat and fire.
- Check to see if your street number is clearly visible from the road. If not, paint it on the curb or install house numbers to ensure that responding emergency personnel can find your home.
- If there are infants, older adults, or family members with mobility limitations, make sure that someone is assigned to assist them in the fire drill and in the event of an emergency – assign a backup person.
- Tell guests or visitors to your home about your family's fire escape plan. When staying overnight at other people's homes, ask about their escape plan. If they don't have a plan in place, offer to help them make one. This is especially important when children are permitted to attend "sleepovers" at friends' homes.
- If windows or doors have security bars, make sure that bars have emergency release devices for opening immediately in an emergency. Emergency releases won't compromise security but will increase your chances of safely escaping.
- Select an outside meeting place (e.g., neighbor's house, light post, mailbox, stop sign) a safe distance in front of your home where everyone can meet after they've escaped. Make sure to mark the location of the meeting place on your escape plan.
- When you're outside, stay outside. Under no circumstances should you ever go back into a burning building. If someone is missing, inform the fire department dispatcher when you call. Firefighters have the skills and equipment to perform rescues.

A white icon of a thermometer with a snowflake at the top, representing HVAC or climate control.

HVAC

Cooling System

Type: Central Split

You have a central split HVAC system.

A central split system is one of the most common whole house HVAC systems in the US. The basic setup consists of an exterior condenser unit connected to an interior air handler; many central split systems, such as split system heat pumps, generate air condition and heat using the same equipment.

An HVAC central split system generally is installed in homes that have space for large indoor cabinets. The split system model holds the condenser and compressor in an outdoor cabinet; an indoor cabinet holds the evaporator coil, and an air handler sends air through ductwork. A copper tube (line set) that connects indoor and outdoor components moves cold air to the house.

Central air conditioners circulate cool air through a system of supply and return ducts. Supply ducts and registers (i.e., openings in the walls, floors, or ceilings covered by grills) carry cooled air from the air conditioner to the home. This cooled air becomes warmer as it circulates through the home; then it flows back to the central air conditioner through return ducts and registers.

Air conditioners also dehumidify the air to improve comfort. However, in extremely humid climates, when outdoor temperatures are moderate, or in cases where the air conditioner is oversized, the air may not reach a low enough humidity to achieve a comfortable level. In those instances, homeowners may reduce the thermostat setting or use a dehumidifier.

Maintaining your HVAC central split system to operate as efficiently as possible can help to reduce your energy costs. Your HVAC system is the largest energy expense in your home and may account for 40% to 50% of your total energy bill.

Your HVAC system also represents one of the highest cost systems in your home; replacing your HVAC system can cost between \$5,000 to \$10,000, depending on quality, capacity, efficiency, installation complexity, and tax credits and rebates. Proper maintenance not only helps to reduce your monthly energy expenditures but also will significantly extend the life of the HVAC system and delay the need for an expensive system replacement.

Set your thermostat properly.

Set the fan to auto mode; do not use the system fan to provide air circulation – use circulating fans in individual rooms.

Try to set your thermostat at one temperature; constant adjustments can cause higher utility costs, especially in extreme weather. If you're using the thermostat as a setback type, limit setbacks to twice a day, e.g., when you're at work and when you're sleeping.

During the heating season, try not to set the thermostat below 65F. During summer, try not to set the thermostat below 70F, which may cause higher utility costs and permit the indoor coil to freeze and cause condensation in the house.

Replace your air filters regularly.

Check your air filters monthly. Changing air filters is important because dirty air filters impede airflow – the system won't operate efficiently, which increases operating costs and degrades the equipment more quickly. Cheap filters provide basic protection and should be changed more frequently, e.g., 30 to 60 days. More expensive air filters offer improved air quality, which can help people



who have allergies or asthma; such filters may last three months or longer depending on the quality of the filter and your furnace. Check your system recommendations and filter packaging for filter info.

Check your exterior equipment regularly, especially during winter.

Check your outdoor equipment, especially during cold weather. Watch for signs of excessive ice or snow build-up on or around the equipment, particularly after bad weather. If ice or snow cover the unit, turn the thermostat off or to emergency heat. Brush off snow or ice or pour warm water over the unit to melt the snow and ice. Do NOT pour hot water on the unit and do NOT use sharp objects to pick or knock the ice off the coils of the condensing unit, which could be damaged. After the unit is clear of snow and ice turn the thermostat back to normal heating. If the unit ices up again, call an HVAC contractor for service.

Don't permit the outdoor unit to reside under a leaking gutter. In winter, water may drip onto the top of the unit and freeze solid, which will restrict the air flow and cause the unit to stop working. Exterior equipment should be elevated 4" to 8" above ground level to keep coils clear of snow and ice and to allow for proper drainage; make sure your equipment hasn't settled to less than 4" above ground.

Weatherproof your home.

You may question why weather-proofing your home has a relationship with maintaining your HVAC system. The answer is that any weakness in the structural shell of your home permits external air to penetrate inside and interior air to leak outside. Sealing your home helps to reduce the amount of heating or cooling needed to keep your house comfortable.

To identify sources of energy loss, qualified HVAC contractors can provide a home energy audit to determine where your home's weaknesses exist; in many states, home energy audits are free or subsidized by your power company.

Using specialized equipment and infrared cameras, an HVAC professional can also determine where your home may be leaking energy and help you to determine the best places to make improvements. Projects are DIY and inexpensive – weather-stripping windows and doors, sealing and insulating duct work, or adding insulation to your attic.

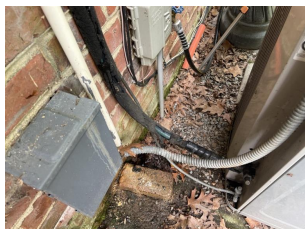
Listen to your HVAC system.

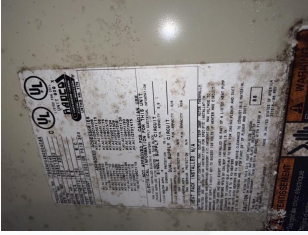
Many HVAC system issues occur gradually and only develop into serious problems over time. Listening to your system while you're next to the equipment may help to identify issues before they develop into costly repairs.

At least every couple of months, stand next to your system while it is operating and just...listen. Do you hear any unusual noises? Rattles, scraping, grinding, sparking, loud humming, intermittent noises. Loud humming usually indicates an electrical problem. If anything sounds unusual, engage an HVAC contractor to assess the issue.

Check and clean your fans regularly.

Keep your fans clear and working properly. Closing or blocking a fan can cause the equipment to work harder, resulting in a shorter lifespan. With a damp cloth, clean the grills and wipe around the fan's entrance as far as you can reach. On occasion, take the cover off your fans and use a vacuum cleaner to remove dust or hire a professional cleaning company.





A white icon representing plumbing, showing a central vertical pipe with two horizontal pipes branching out to the left and right.

PLUMBING

Water Service Line

Type: Public

Material: PVC

You have public water service delivered to the house via a PVC water service line.

Water is provided to your house by the public water utility. Water service lines connect underground main lines to underground water service lines to your house for potable water, i.e., drinking, washing, plumbing, etc. Water service lines may also be used to supply water for other applications, e.g., irrigation, fire suppression systems. Water service lines generally are installed at the time of construction.



The water company's distribution main connects to your property's water service line near the edge of your property at which a valve, referred to as a curb stop, permits service personnel to regulate water flow from the main to your house; the water flow meter also generally is located at the curb stop.

The water service line on your property travels underground, typically buried two to four feet, from the curb stop and terminates at a main water shut-off valve on the interior or exterior of your house.

Know the location of your main water shut-off valve and keep it readily accessible.

In case of emergency, e.g., overflowing bathtub, leaking pipe, know the location of your main shut-off valve. Mark the valve with a bright-colored ribbon or tag. Engage a plumber if your main shut-off valve is inoperable or leaks.

Your main water shut-off valve also should be readily accessible, e.g., no personal items, trim vegetation.

Keep your curb stop accessible.

Curb stop valves permit the water company and authorized contractors to regulate water to your house. Although curb stops generally are located near the edge of your property in the public right of way, you're responsible for your property's curb stop. Curb stops must be operable and accessible to the water company to turn water on and off. Keep your curb stop area free of landscaping and debris in case urgent repairs require water to be turned off.

Check your service entry line regularly.

Your service entry line is designed to last for decades. However, connections may degrade over time. You should check your service entry line regularly for corrosion or leaks. Engage a plumber if your service entry line connection requires attention.

Test your water annually.

If you have any concerns about your water quality, please contact your water company, which typically offers free water testing services.

Call 811 before you dig.

With underground service lines, watch when you're digging. Digging around underground feeders is a disaster waiting to happen! Before you dig anywhere in your yard, 811, the "Before You Dig" hotline. The service will connect you to a local operator who will contact the utility companies with lines in your area. The companies will mark your lines within a few days and usually at no cost to you.

Know when to call the water company or a plumber.

If you think there is a problem with service supplying your home, contact your water company. The water company is responsible for water service up to the edge of your property, typically at the curb stop.

If you think you there is a problem with your plumbing, contact a plumber. You're responsible for the underground water service lines on your property.

Main Shut-off

All water that is piped into your home from an outside source arrives at the main shutoff valve. The shutoff valve is used to shut off the supply of water into your house. If you have a plumbing emergency, or if plumbing maintenance is required, it is critical for you to know how to turn off the water to your house.

Clearly label your water shut-off valve with a bright-colored ribbon or tag.

Make sure that everyone in your house can easily identify the valve.

See your Water Shut-off page for a photo and location data for your water shut-off.

Make sure to keep your water shut-off valve readily accessible.

In unfinished spaces, boxes and personal items may start to block your access to the water shut-off valve. In finished spaces, furniture or other items may be placed in front of the access panel to the shut-off. Don't let that happen - you need an open, safe path for quick access to the shut-off valve because every second matters to minimize water damage in case of an emergency. Keep boxes, personal items, and furniture away from your water shut-off valve.

Test your main shut-off valve annually.

Be sure to turn the main valve off and on at least annually. Most valves turn to the right to stop the flow of water. Any time you shut off the water and allow the pipes to drain, unscrew the aerators (small screens) on the ends of any affected fixtures (e.g., faucets) before you turn the water back on. Removing the aerators will prevent loosened particles of scale from clogging the aerators.

Gate valve vs. ball valve.

Main shutoff valves are normally one of two types: gate valve or ball valve.

A gate valve utilizes an internal gate that moves up and down a stem, which is connected to a handle which screws the gate up or down, opening and closing the gate. Although a gate valve is long-lasting, it can get stuck in place if it isn't used occasionally. When you've closed and opened a gate valve, it may start to leak a bit around the valve stem, which is held in place with a packing nut. You can tighten the nut just enough to stop the leak; be careful to not over-tighten the nut or the valve may become difficult to turn. Gate valves need periodic checking and turning to ensure proper opening and closing. Gate valves are commonly found in older construction.

A ball valve utilizes a sphere with a hole in it to control flow. When the handle is parallel to the pipe, the hole is open for water to flow. When the handle is turned (i.e., at a right angle to the pipe), the sphere also is turned, i.e., the hole is perpendicular to the valve and the flow of water is stopped. Ball valves can almost always be operated after years of disuse and don't typically freeze in position. Newer construction or plumbing with copper or plastic main water pipes generally use ball valves instead.

Understand and test auxiliary water shut-off valves.

Water flows through the main shutoff valve to your supply pipes that route water to various plumbing fixtures in the house. Most water fixtures, e.g., exterior faucets, washing machine, kitchen sink, dishwasher, sinks, toilets, feature an auxiliary shutoff valve, which means you can stop the flow of water to individual fixtures or specific areas of your house during a repair or emergency and still supply water to the rest of your home. Auxiliary shutoff valves are generally located close to the fixture that the water pipe serves—under your sinks, beneath your toilet tanks, and near your washing machine. You should test your auxiliary water shut-off valves annually.

Engage a plumber if valves aren't operable.

If valves are stuck in place, don't exert extreme force to try to open the valves. Engage a plumber to evaluate and assess repairs.



Supply Pipes

Material: Copper

You have copper supply pipes in your house.

There are two main types of plumbing inside your house: water supply pipes and drain-waste-vent pipes. Your water supply pipes operate under water pressure, i.e., water is “pushed” through your pipes so that when you turn on water at the sink or shower, water under pressure flows out of the fixtures. Your drain-waste-vent pipes operate via gravity, i.e., water from your sink drain or a toilet flush runs downhill.

Your main supply pipe connects to your main water supply at or near the point at which water enters your house. Your main supply pipe typically branches into a system of pipes for cold water and another set that routes through your water heater to produce hot water; hot and cold-water pipes often parallel each other when routed throughout your house. Your water supply pipes distribute water from your main supply pipe to fixtures throughout your home, including sinks, showers, bathtubs, toilets, and outdoor hose connectors.



Copper pipe is mostly used for hot and cold-water supply piping. For many years, copper was the gold-standard for water supply pipes, as galvanized steel fell out of favor. Copper plumbing pipes can last for up to 50 years, but as it ages, copper thins out, eventually leading to pinhole leaks. More recently, various forms of plastic piping have replaced copper because of the price of copper and longer labor needed to install; however, copper pipes and fittings are still widely available.

Check your pipes regularly.

Checking on your pipes is about looking for obvious signs of water damage around your home – discoloration, water stains on ceilings or walls, warping. Of course, you should also pay attention to any exposed pipes, e.g., under your sinks. Look for any signs of corrosion or leaking connections.

Use safe drain cleaners.

Clogged pipes happen. Don't use chemical drainers like Drano or Liquid-Plumr; high acidity levels can be harsh on old metal pipes and even hasten their deterioration. For minor clogs, use a homemade baking soda and vinegar mix or a store-bought enzyme treatment on all your sinks and showers about once a month. Rinse thoroughly with hot water. This will keep your pipes relatively clean and help prevent buildup.

If you have a serious clog, engage an experienced plumber. Plenty of people snake their own drains (and in general, it's never a bad idea to learn how to detach and clean your P-trap yourself), but an improperly sized snake or auger can permanently damage your pipes. Hydro-jetting, which sends a powerful stream of water through your pipes, may be another alternative but that's also a job for a professional plumber.

Be mindful of what you're pouring down your drains.

Do not pour grease or oils down your drains, e.g., cooking grease, body oils. Use filters and screens over your drains to prevent particles from passing through and sticking to the inside of the pipe. When you're washing dishes, place food waste in the trash or a compost bin. Food particles can easily clog drains when flushed down the sink plug hole. Avoid flushing any waste other than toilet tissue down your toilet. Feminine hygiene products or cotton wool swabs can cause clogs in your pipes, restricting water flow and backing up water in your toilet bowl.

Investigate low water pressure.

If your water pressure is weaker than usual, it may be a sign there could be some buildup inside the pipes or a leak in the system. Look carefully for evidence of leaks and engage a plumber as required.

Seal holes and cracks.

You can seal small leaks and cracks in your water pipes by patching up the drip. You can use plumber's putty or tape, just follow application instructions.

Protect your pipes in harsh weather.

Frozen pipes are common in winter, especially when your pipes are old and have begun to deteriorate. Freezing can create pressure inside the pipe, resulting in a pipe burst and severe flooding. Run your hot water regularly; you can defrost frozen pipes by running hot water continuously from the tap to help warm them up. Keep your heating on; keeping your indoor temperature above 50F keeps your pipes warm and prevents them from freezing. You can also open cabinets around hidden pipes to protect them from freezing.

Soften your water.

High mineral content may shorten the lifespan of your water pipes. Minerals build up in the pipes over time, increasing the likelihood of clogging; minerals can also corrode pipe joints and fillings. Consider investing in a whole-house water softener system to break down the minerals. Combined with a reverse-osmosis system, you can get the purest water possible to all areas of your house, including the laundry room. To check whether you have hard water, read your municipality's water report, which is required to be filed annually; you can search for yours on the EPA database. If the density is listed as having over 140 parts per million, you have hard water.

Invest in a leak detection system.

There are numerous smart water shutoff systems which automatically turn off water if irregularities or leaks are detected; such water systems measure water pressure, water flow rate, and temperature. Smart water shutoffs are accessible via Wi-Fi and monitor your plumbing system 24x7.

Drain, Waste, Vents

Type: Public Sewer

Your plumbing system disposes waste to a public sewer system.

All homes dispose of waste and water to either a public sewer line or a private septic system. Both types of systems are designed to handle and treat “blackwater” (wastewater from toilets) and “graywater” from sinks, showers, dishwashers, and laundry machines. Private septic and public sewer systems work in similar ways, utilizing micro-organisms to filter out bacteria, viruses, and other disease-causing pathogens before releasing cleansed water back into the environment. Sewer lines connect to public sewer systems, which are generally available in urban and suburban areas; septic systems are generally the only option available for homes located in rural or low-density areas.



Most people prefer to be on a sewer system, as the local government is responsible for maintaining the system. In a sewer system, your waste is routed to a centralized treatment facility, which is designed to withstand heavy loads and can better accommodate periods of heavy precipitation or storm surges that might overwhelm smaller septic systems. Unlike septic systems, most public sewer systems require regular waste service fees.

Test your sewer line.

Even though your house is connected to the public sewer system, you’re responsible for sewer piping on your property. Watch for signs of a pending sewer drain clog and fix them before they become full-blown stoppages. You can test the effectiveness of your sewer line by emptying all sinks and tubs at the same time and watching if a floor drains back up or if it takes a long time for all the drains to empty.

Snake your sewer pipes.

If you suffer periodic sewage stoppages or backups into your home, your sewer line likely is impaired; sewer lines may be penetrated by tree roots. Engage a plumber to snake the line annually to prevent backups into your home.

Inspect vent pipes.

Your plumbing system drain lines are connected to pipes that ventilate sewer gases. Plumbing vent pipes are important because they prevent gas and odor from building up in your home; they also control air pressure and the entire plumbing system. If your plumbing vents become clogged, it impacts your entire plumbing system.

Vent pipes usually exit through the top of your roof. You will likely have several vent pipes, one for each main soil stack and other secondary pipes. Vent pipes may become blocked with debris or snow and ice and the drain system in your house will not work as effectively. If your roof is accessible, visually inspect vent pipes extending through your roof for signs of blockage. If your roof isn’t accessible, use binoculars to inspect the pipes. Or engage a plumber for an annual check-up, including vent pipes.

Slow or gurgling drains.

Slow and sluggish sink drains are common. The pop-up may have collected hair and debris or soap and other bioproducts may have accumulated in the drain pipes.

- Clear out debris – Insert a plastic Zip-it tool into the drain to grab hair and debris; Zip-it is thin enough to fit in a drain with a pop-up.
- Remove and clean the pop-up – The pop-up may also collect debris and build-up. You can remove and clean the pop-up. Most pop-ups are held in place with a nut attached to the drain just under the sink. To remove the pop-up, reach behind the drain pipe under the sink to find the pop-up nut. After removing the nut, the pop-up can be pulled out, cleaned and reinstalled.

- Clean with homemade mix – Clean drain pipes after you remove the debris. Don't use chemical drain cleaners, which are dangerous, poisonous and bad for the environment. Pour boiling water into the drain. Then pour 1 cup of white distilled vinegar and ½ cup of baking soda. Wait 10 minutes then pour boiling water into the drain again. Flush with hot tap water.
- Use a plunger – You can also use a on a slow sink drain. Plunging can loosen and dislodge hair and debris that is collected in the pipe. Cover the sink overflow with tape before plunging; covering the overflow helps to create a seal.

Strong sewer smells from drains.

Sewer smells are unpleasant and also unsafe – methane in sewer gas is toxic, combustible and can lead to carbon monoxide poisoning. Don't ignore sewer smells or expect the smells to dissipate without action.

- Clean out bio accumulation – Body oils, conditioner, shampoo, soap, and shaving cream wash down the drain along with natural debris, e.g., skin cells, hair and often accumulate in the pipes under your shower. As bio accumulation increases, it may release a sewage smell from bacteria and decomposing debris; bacteria are sticky and cling to your pipes and are difficult to remove without specialized products. Sewage odor may become noticeable in the entire bathroom, not just in the shower or bathtub. To eliminate the odor, you have to unclog debris that is feeding bacteria in the drain.

Remove the shower drain. Boil between five to 10 quarts of water, allow the water cool to about 150F and then slowly pour the water down the shower drain. Follow the water with 1 cup of white distilled vinegar, then ½ cup of baking soda. After two hours, pour a gallon of hot water into the drain, then push a drain brush through the drain to clear out any remaining debris.

- Restore your P-trap – A P-trap is a U-shaped pipe designed to trap and hold water; when it works correctly, a P-trap holds enough water to prevent gases and odors from the sewer to creep up your drain.

Water could have evaporated from the P-trap. Turn on your water for a few minutes to refill the P-trap; water should be enough to refill the P-trap and stop sewage gases from leaking into your bathroom. If the smell persists, try pouring a quart of water into every drain in your home, including sinks and toilets.

If you use your drain frequently and still notice a sewage smell, your P-trap may be leaking, preventing it from holding water. If the odor remains after running water through all drains, you probably have an old or leaky P-trap. Engage a plumber to resolve the issue.

Strong sewer smells from toilets.

- Broken or loose seal – Sometimes a toilet leaks from its wax ring, which seals the toilet drain and prevents water leakage. If the toilet bowl is loose, it can damage the wax ring, leading to sewage seeping out and producing bad smells. Your toilet could also be broken, cracked or otherwise damaged. Your toilet also may have cracked around the bolts that fasten it to the floor or from using a drain snake too aggressively. If there is a broken or loose seal, try adding caulk around the base and bolt holes securing the toilet to the ground. If your toilet bowl is wobbly or loose, the wax ring may have broken or cracked; you can reset the toilet with a new toilet ring.
- Clogged vent pipe – Your toilet's vent is designed to get rid of odors. If a clog prevents gases from venting, the gas can't escape and reenters the drainpipes, which may result in an unpleasant odor from sinks or toilets. Engage a plumber to resolve the issue.

Gurgling toilets.

Toilet gurgling may not seem like a serious problem, but it could be a sign that your plumbing isn't functioning properly.

- Tank equipment – The toilet's float-fill-flapper system flushes and refills the tank with clean water; components may wear and malfunction after repeated use. Problematic toilet hardware can cause gurgling sounds and reduce the utility efficiency of your home. Replace the flush valve and check to see if gurgling persists.
- Reverse suction – Reverse suction occurs when the water in your toilet's built-in P-trap is pulled out of the bowl and back into your plumbing system. Reverse suction may be due to a lack of proper venting. Without the right vents, other appliances like washers and dishwashers can create backflow that will pull air from your toilet, resulting in a gurgle. Clogs are a common source of venting issues. Most plumbing vents open to the outside of your home; animals and debris can clog your vents. Engage a plumber to resolve the issue.
- Clogs – Gurgling can emanate from air escaping a blocked pipe; roots, sediment, minerals, debris, and non-flushable items

are common sources of clogs. Obstructions can occur in any part of your sewer line. A plunger may clear minimal blockage near your toilet bowl; large or remote clogs sometimes require snaking. You can rent a plumber's toilet snake from your local hardware store but be careful because mistakes clearing clogs could exacerbate the situation. Engage a plumber to resolve the issue.



Water Heater

Type: Tankless On-Demand

Capacity: Tankless System Gallons

Fuel: Natural Gas

You have a natural gas tankless on-demand water heater. Your water heater has a capacity of Tankless System gallons.

Tankless water heaters, also known as on-demand water heaters, are modern hot water systems capable of producing constant and unlimited amounts of hot water when required. On-demand units don't have a tank in which hot water is stored, but rather are designed to instantly heat hot water whenever it is needed. Tankless systems work by flowing cold water through super-heated coils that can heat the water exceptionally quickly. The systems are growing in popularity due to their convenience, efficiency, and small space requirements.

Tankless hot water systems are incredibly efficient because they only heat hot water when it is needed, not continually. Like conventional hot water systems, tankless models need little maintenance. However, most manufacturers recommend having your system serviced annually to remove any mineral scale and avoid corrosion. If appropriately maintained, tankless hot water systems should last about 8-10 years before they require replacement. You can extend the life of your water heater and maintain your heater's efficiency and safety with just a few minutes of maintenance annually.

Check your water heater temperature setting.

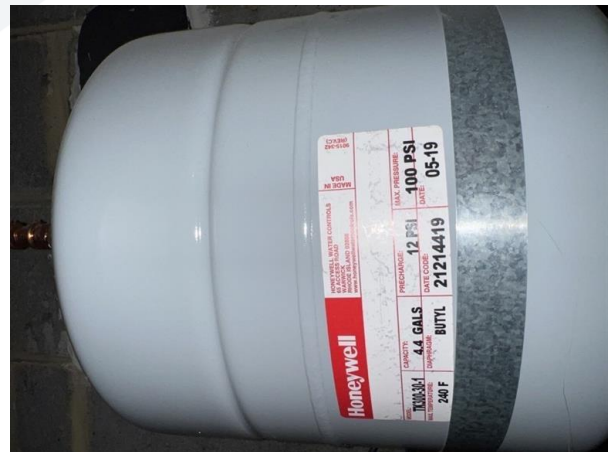
Set your water heater to 120 F. Higher temperatures increase sediment buildup and the risk of scalding injuries.

Flush your water heater semi-annually.

Flushing your water heater helps to remove scaling that may accumulate from minerals in your water. Check your owner's manual for details or follow direction below. You will need a 5-gallon bucket, submersible transfer water pump (for moving liquids from one place to another), two gallons of white vinegar, hose, and pliers.

- Turn off the water inlet and outlet valves on the water heater
- Shut off the gas to the water heater
- Find and pull the tab for the pressure-relief valve
- Pour the vinegar into the bucket
- Place the submersible pump in the bottom of the bucket
- Run a hose from the heater's inlet to the pump and connect them
- Connect another hose to the pressure-relief valve and run it into the bucket
- Pump the vinegar through the heater for 15 to 20 minutes
- Turn off the pump, unscrew the inline filter housing, remove, clean, and replace the filters
- Run the pump out of the bucket to empty the lines of vinegar
- Run clean water through the heater for a few minutes
- Turn the water and power back on

If you engage a plumber to perform maintenance, consider capturing a video to try to DIY the service the next time it is required.



Check regularly for water leaks.

Leaking water can cause significant damage to a home, so it's important to fix the leak as soon as possible. Leaks may be caused from loose valves, pipe connections, or cracked parts, e.g., heat exchanger. If your water heater leaks, engage a plumber to evaluate and resolve the issue.

When you have no hot water.

Check your power source, check your water supply – make sure both are connected and turned on. Check to be sure that shut-off valves are open. If you can't figure out how to restore hot water, engage a plumber.

When you don't have enough hot water.

If your water heater produces hot water, just not enough of it, your unit could be too small for your household's hot water demand. If the demand is too great for your heater capacity, try to limit the length of showers, add more efficient showerheads, and conduct dishwashing and laundry to different times of the day. Otherwise, consider replacing your water heater.

Whirlpool

Type: Interior/Installed

You have a whirlpool tub installed inside your home.

A whirlpool is a beautiful and practical fixture for your home. Whirlpools provide a comfortable place for you to relax, reflect, and recover from the stresses of daily life. Whirlpools add visual appeal, making the space look elegant and luxurious. Whirlpools also enhance home value – a well-maintained whirlpool can make your home more attractive and valuable to future buyers or renters.

Although some whirlpools include self-cleaning systems, most whirlpool tubs require regular maintenance. You have to pay attention to jets, drains, and other components. And of course, you need to make sure to maintain proper safety protocols.



Safety first – your whirlpool is a swimming pool.

For safety measures, your whirlpool is like a swimming pool – it's lovely and beautiful and enjoyable but it's also dangerous. You should practice techniques that are similar to safety protocols for a swimming pool, e.g., don't leave children unattended, don't consume alcohol, use proper handrails and grips, keep decks clean and free from obstructions, etc.

Read your owner's manual.

Check your owner's manual for maintenance and safety guidelines. If you don't have the original owner's manual, check for a manual online or contact the manufacturer.

Circulate water and operate jets daily.

Some whirlpools have automatic or programmable circulation schedules to circulate the water and operate jets for about 15 minutes daily or twice per day. The cycles ensure that water is refreshed.

If your tub doesn't have an automatic cycle, you should run the tub for 15 to 20 minutes twice per day to keep water circulating.

Test pH and alkalinity weekly.

Test your water to determine pH and alkalinity levels.

You should target a pH level of 7.4 to 7.6. Lower pH is too acidic; water could irritate your skin and eyes and slowly deteriorate your hardware. Higher pH reduces your sanitizer's effectiveness and water may become cloudy. You should target alkalinity of about 100 parts per million (ppm) to 150 ppm. If alkalinity is too high, it can cause scaling and cloudiness.

You should maintain a supply of essential chemicals to adjust the chemistry as required, e.g., pH increaser and pH decreaser, alkalinity increaser to protect your pH from drastically changing, sanitizer (chlorine or bromine) to kill bacteria and other contaminants, shock (non-chlorine or di-chlor) to give your sanitizer a boost by adding oxygen and removing chloramines and bacteria, test strips or a liquid test kit to make sure all your chemical levels are in the right range, defoamer (optional) for quick relief from foamy hot tub water.

Clean your whirlpool regularly.

Your whirlpool's parts can get clogged with mold and mildew from moisture bacteria from body oils, soaps, and dead skin cells that attach to the crevices of the jets. You should clean your whirlpool tub after each use; you should deep clean the whirlpool monthly.

A mix of baking soda and vinegar are typically enough to give your whirlpool a thorough cleaning. Stronger cleaners, such as bleach, can be used for jets crusted with soap scum or other debris. A used toothbrush or narrow nylon brush for cleaning straws or

baby bottles works well to get into the crevices and water jets.

Fill the tub with hot water until the jets are submerged a few inches. Add 2 cups of white distilled vinegar to the water and turn on the jets for 15 minutes. Rinse the resulting debris down the drain and follow up with your favorite tub cleaner or with a sprinkle of baking soda and a spritz of vinegar. Scrub the tub and jets with the cleaner, making sure to get into the nooks and crannies with an old toothbrush or narrow scrub brush. Unscrew the air intake cover, scrub it inside and out and rinse well before reattaching. Fill the tub with water, rinse the cleaners from the surface, and buff dry with a clean microfiber cloth.

Perform annual maintenance.

- Flush lines to remove bacteria and biofilm.
- Inspect your hardware and wiring for damage due to wear and tear, pests, and chemical imbalance.
- Inspect your cover for physical damage, moisture absorption, and mildew or mold infestations.
- Engage a professional to perform a tune-up.

A white icon representing a floor plan, consisting of several small squares arranged in a grid-like pattern.

INTERIOR

Windows

Material: Wood

You have wood windows.

Wood has been a principal material for construction for a long time. Wood is a true and tested building material that has been proven to work well for thousands of years and it's still a popular choice for windows.

Wood is regarded by many as the most aesthetically pleasing window material. The natural look of wood is more attractive than vinyl windows. Wood windows can be painted or stained to match the style of your house. Wood windows also come in a variety of types: double hung windows, bay windows, awnings, etc. Wood has the smallest "coefficient of expansion" than other materials, a fancy way of saying that wooden windows are stable and immobile. Wooden windows are energy efficient; wooden frames act as good insulators, keeping warm air in and cold air out, even in extremes.



Like any window material, wood has some disadvantages, e.g., more maintenance than vinyl or aluminum. Wood is vulnerable to rot, termite infestation, and cracking or warping due to heat and moisture; cracks and gaps in wood can defeat its energy efficiency characteristics.

Whether you have old wood windows or recently installed them, maintenance is key. Monthly inspections and cleanings will prevent a lot of damage, and help you recognize major problems early. With prompt repairs and maintenance, you can keep your windows looking their best and have them last for many years.

Clean windows and frames regularly.

Over time dirt, moisture, soot, and pollution build up on your windows. You need to clean wood often and treat wood as required. Taking the time to regularly remove this top layer of dirt will help keep your windows clean and makes the rest of the process more efficient. Use a soft, dry cloth to remove loose dust and dirt. Use a mild detergent, warm water, and a soft cloth or sponge. Keep the cloth damp, not wet; rinse and wring out the cloth often and replace water when it gets dirty. As soon as you finish cleaning wipe the frames with a clean, damp cloth to remove the soapy residue. Follow the rinse with a dry cloth to remove any excess moisture.

Check for damage.

While you're cleaning windows and frames, look for cracks, peeling, or mildew growth. You may notice spots where finish has degraded, exposing natural wood. Don't permit your windows to remain unprotected; retreat areas as soon as possible. Location matters – windows facing south are more vulnerable to weathering. Pay extra attention to windows facing south.

Check for insect infestation.

There are numerous wood-boring insects – carpenter ants, termites, bark beetles and wood borers, and powder post beetles. Each of these types of insects damages wood and it's likely insects were present before you started to notice them. Engage a pest contractor as soon as possible.

Recaulk framing as required.

Caulking protects the edges of your window frame from moisture. Regularly inspect exterior caulking around the outer edges of the window frame. Trim loose or cracked caulking that you find and seal gaps with high-quality exterior caulk. Do not use caulk intended for interior applications.

Treat wood as required.

If you discover parts that need refinishing, gently sand areas with a fine-grit sandpaper. Fill cracks or low spots with wood filler

and smooth the surface with a putty knife. Allow repairs to dry overnight before refinishing. Be careful what finish you use; some paints may fully block the sun, but trap moisture that promotes decay. Use an outdoor latex or oil-based enamel paint. If you want a natural look, a better option is a semitransparent stain that offers a balance of protection from sun and moisture. Apply one thin coat of paint or stain and permit the finish to dry for two hours before applying a second coat.

Windows

Material: Vinyl

You have vinyl windows.

Vinyl is a popular window material. Vinyl is made from a plastic material called polyvinyl chloride (PVC), which is durable and recyclable. Vinyl windows don't need painting, staining, or refinishing. Fully welded sashes and frames add strength and durability. Vinyl is energy efficient, helping to keep heat in during winter and out during summer.

Like other window materials, vinyl windows have some disadvantages. Vinyl windows contract and expand during hot and cold weather, causing issues in structural integrity, air infiltration, and problems opening and closing the window. Warping can also damage glass seals in double panes, which may cloud windows or lead to mold growth. Vinyl also isn't as strong as wood or fiberglass, so more vinyl is required to carry the glass, which means the glass space on a window will be slightly smaller.



Well-maintained vinyl windows can last 20 to 40 years.

Clean interior vinyl frames regularly.

Vinyl frames can become discolored if not cleaned properly or regularly. Use a gentle solution of soapy water; don't use acid cleaners, strong solvents, or abrasive materials, which may damage the vinyl.

Clean exterior vinyl frames occasionally.

Keep your exterior vinyl window frame, clean occasionally, e.g., a few times annually. Use a soft cloth on your windows and use gentle soap and water; avoid harsh abrasives, acid cleaners, or acidic solvents. Don't pressure-wash the windows; pressure-washing can damage or discolor the seal on vinyl.

Keep tracks clean.

One of the most important ways to keep your vinyl windows working correctly is by keeping tracks clean. Dirt and dust build up in the tracks over time, which places added stress on windows and may cause hinges, weatherstripping, locks, and rollers to wear out sooner. In more serious cases, tracks may permit into your house. Clean your window tracks when you clean your window glass. Wipe tracks with soapy water until they're clean; wipe with a wet cloth until all soap residue is gone.

Lubricate hardware.

Another important way to keep your vinyl window working correctly is to lubricate the hardware. Lubricate hardware if it doesn't operate as smoothly as it should. This includes the hinge and any other moving pieces. Clean off dust and dirt, wipe down hardware with soapy water, and rinse off soap residue. Use silicone-based lubricants for hinges, rollers, and metal tilt latches. Don't use citrus cleaners, vinegar, abrasive solutions, or ammonia.

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Caulking protects the edges of your window frame from moisture. Regularly inspect exterior caulking around the outer edges of the window frame. Trim loose or cracked caulking that you find and seal gaps with high-quality exterior caulk. Do not use caulk intended for interior applications.

Check for damage.

While you're cleaning windows and frames, look for damage, including water leaks through window frame joinery, water damage beneath leaking window frame, water leaks through glazing, water leaks through trims attached to PVC windows, bowing or bending of vinyl frame or sash members, poor tolerances (parts that don't fit very well), poor serviceability, e.g., off-balance sash, and insulated glass seal failure. Engage a window contractor for serious window issues.



Fireplace

Material: Masonry

You have a masonry fireplace.

When the weather outside is frightful...nothing can cheer you up and thaw you out than sitting in front of your wood-burning masonry fireplace. A masonry fireplace is one in which the interior of the fireplace is made of brick, blocks, or stone. Masonry fireplaces are built on-site by masons, usually when the house is constructed.

Masonry fireplaces are some of the most beautiful types of fireplaces; brick, block, or stone may be arranged in a dazzling display of masonry work, or simply lined along a wall to create a more basic fireplace. Masonry fireplaces are durable and long-lasting with proper upkeep. Masonry fireplaces help to improve the heating efficiency of your home as the stone, brick, or block absorb and redistribute heat from flames. And masonry fireplaces tend to maintain or increase the value of your home.



Although masonry fireplaces are built to last a lifetime, attention and simple maintenance is required to keep your fireplace in good and safe working condition.

Open the damper.

Make sure the damper or flue is open before starting a fire; an open damper or flue helps to draw smoke out of the house. Check to see if the damper is open by looking into the chimney with a flashlight or mirror. Don't close the damper until embers have completely stopped burning.

Burn the right types of wood.

Burn hardwoods only – oak, birch, cherry, and ash burn hotter and longer and produce less buildup. Soft wood is inefficient, doesn't produce as much heat, and generates much more buildup.

Maintain the area around the fireplace.

Make sure the area around the fireplace is clear of anything that is potentially flammable (e.g., furniture, drapes, toys, newspapers, books, etc.).

Never leave a fire unattended.

Make sure a fire is completely out before going to bed or leaving the house.

Test smoke and carbon monoxide detectors.

Test smoke and carbon monoxide detectors monthly.

Inspect your firebox regularly.

Visually inspect the firebox, including bricks and mortar. Although bricks and stones are exceptionally durable, mortar used to attach them together (pointing) can be more troublesome; mortar can wear out over time. Repointing may be needed to replace the mortar and ensure the integrity of the firebox.

Watch for signs of efflorescence, which looks like chalk on bricks or stones; efflorescence occurs from the growth of salt crystals which migrate towards the surface when water penetrates the brick or stone. You can remove efflorescence with full strength white vinegar; spray stains, wait 10 to 15 minutes, then rinse with plain water from a hose.

Also watch for spalling, or when bricks or stones start to flake and crack. This is typically caused by moisture penetrating the brick or stone; the source of the moisture must be identified and mitigated.

Remove creosote and soot.

Creosote is a dark, hard, crust-like flammable substance that appears after an incomplete combustion of wood. Soft wood, e.g., pine or poorly dried and stored wood produce larger amounts of creosote than hardwoods that have been properly dried and stored. Excessive creosote buildup can cause the chimney to catch fire. If you notice any buildup, use a chimney brush to remove the creosote.

Soot also is a harmful by-product of burning wood and can cause several issues if not effectively managed. Unlike creosote, soot is softer and can easily spread across a wider area and difficult to clean as a result. Soot can cause a fire outbreak if it is present in a large volume. You should regularly clean soot deposits, especially if soot gets larger than 1/8 inch deep.

Clean your firebox as required.

For simple cleaning, remove ashes from the fireplace. Removing soot and fire stains from the firebox takes a little more effort. Spray a mixture of soapy water, let the solution remain on the surface for about 30 minutes, then scrub surfaces using a stiff plastic brush; don't use a metal wire brush as it may abrade the mortar. For very stubborn stains, you can use muriatic acid, but be careful because it is a toxic, harsh chemical; wear appropriate clothing and follow application instructions carefully.

Engage a chimney sweep after approximately 50 burns.

No matter the type of fireplace, you'll need your chimney swept in order to keep your home safe. How often you use your fireplace determines how often you should have your chimney swept; if the chimney liner has 1/8" of soot, it needs to be cleaned. Because it's not easy to measure soot depth, clean your chimney after approximately 50 burns. If you burn softer wood which generates more ash, engage a chimney sweep more frequently.



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Fuel-burning Appliance

Type: Fireplace Insert

Fuel: Natural Gas

You have a natural gas fireplace insert.

Gas inserts offer much of the charm of wood-burning fireplaces with higher efficiency and less maintenance. Gas fireplaces burn natural gas or propane instead of wood. Most freestanding gas inserts are easy to use, requiring only the flip of a switch or push of a button to start and stop, delivering instant flames and ambient heat. Gas inserts let you enjoy the warmth of a fireplace without the hassle of burning wood.



Gas inserts are convenient; some units have their own remote control and timer that can turn off your fireplace automatically. Gas inserts are low maintenance; no wood storage, no ash, no clean up. You just need to clean it out (including its glass), once or twice a month and you're done. Gas inserts produce natural-looking yellow fire and flames similar to wood-burning inserts. Gas inserts have lots of venting options, e.g., direct venting and power vents. Free-standing gas inserts radiate heat from all sides of the unit, whereas a fireplace only radiates heat from the front; most gas inserts are comprised of classic black cast iron or steel.

There are some disadvantages to gas inserts, e.g., some people prefer the coziness and ambience that wood burning offers. Fuel also costs more; even though gas is not very costly, it costs more than wood, logs or pellets. With proper use and regular maintenance, a freestanding gas insert should operate 15 to 25 years.

Know the location of your gas shut-off valve.

You should know the location of your shut-off valve and how to turn off the gas supply to your insert. Turn the valve clockwise to turn off the gas.

If you smell a gas leak.

Gas naturally has no odor but utility companies include an additive that smells like rotten eggs so that you can more easily detect a gas leak.

If you smell a faint odor of gas coming from your insert, immediately turn off the gas and contact your gas utility. You should also turn off gas to other flame-operated appliances, e.g., gas fireplaces.

If you smell a strong odor of gas coming from your gas insert, immediately turn off the gas, leave your house on foot, go to a safe distance away, contact your gas utility company and wait for your gas utility service personnel to arrive. Do not use electric switches, mobile phones, home phones, start your car, or do anything else to create a spark which could ignite the gas.

Test your smoke detectors regularly.

Before you ignite your gas insert for the first time, test every smoke detector in your home, i.e. push the test button. Note that a test button indicates that a unit is powered, not necessarily that it functions properly. Consider purchasing a smoke pencil, which produces smoke for testing detectors, as well as checking for drafts or air leaks in your home. You should also test your smoke detectors at the beginning of every fire-burning season.

Test your carbon monoxide detectors regularly.

Before you ignite your gas insert for the first time, make sure you have carbon monoxide detectors installed. Test carbon monoxide detectors is similar to testing smoke detectors, i.e., push the test button. Note that a test button indicates that a unit is powered, not necessarily that it functions properly. To test for function, you can purchase a test kit that has a canister of CO, which allows you to safely expose the alarm to a high level of the dangerous gas, which should trigger an alarm; keep in mind that CO detectors may

take up to 30 minutes to sound an alarm after initial gas exposure.

Check your fire extinguishers.

Before you start your gas insert for the first time, make sure to purchase a multipurpose fire extinguisher for your insert; the extinguisher should be located near the insert and within easy reach.

Read the owner's manual.

Before you operate your gas insert, read the owner's manual.

Maintain your insert.

Check your owner's manual for maintenance requirements. Clean glass as required with fireplace glass cleaner or a mix of water and white vinegar. Clean your airflow and any louvers with a soft or microfiber cloth; if there are no louvers, inspect air cavities to make sure they are clear of any obstructions or excessive dust buildup. Check to make sure your vents are clear from debris. Use a damp cloth to wipe down the exterior of the unit and inspect the paint. If the paint is peeling or bubbling in any spots it may be a sign that the fireplace is not operating correctly and that you will need to contact a professional gas insert technician to inspect the unit.

Trouble-shooting common problems.

- Gas Valve – Check to make sure your gas insert is properly connected to the gas line; make sure the gas valve is turned on.
- Pilot Light Off – Read your owner's manual to relight the pilot; most of the time, you can reignite with a switch or a match. If your pilot light isn't blue, it's not getting hot enough, which may indicate an issue with the gas line, e.g., excess moisture. If you can't get the flame to light at all and you're sure the gas is on, there may be an obstruction in the pilot tube. If the flame lights and goes out after you release the gas control knob after holding it in for 20 to 30 seconds, you may have a thermocouple malfunction.
- Thermocouple or Thermopile – The thermocouple is a heat-sensitive device that transmits a small electrical signal to the gas valve; it keeps the gas valve open by transmitting the electric signal when the pilot is on. Your thermocouple is where you should see flame if your pilot light is on and functioning. Check the wires, screws, and tubing to see if everything is in the proper places. Engage a professional gas insert technician if you can't quickly identify the issue.

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A small white icon of a microwave oven, consisting of a rectangle with a small square on the right side and two dots below it.

APPLIANCES

Range/Oven

Fuel: Electric

You have an electric range/oven.

Like everything else in your house, maintenance helps to keep your appliances in tip-top shape and extends the life of the appliance.

Read the owner's manual.

Check the owner's manual for information on how to operate and maintain the appliance. If the manual isn't available, check public sources to try to find more information about your appliance. If your appliance isn't working properly, your manual should include a trouble-shooting guide to help diagnose the issue.

Take care when baking.

The best way to keep your oven clean is to not let it get dirty in the first place. For example, if you are baking a casserole or pie, place a larger baking sheet underneath the container. A baking sheet or tin foil will catch anything that may leak out or boil over. If you do notice spills when you're finished baking, wipe down the inside of the oven after it cools off. Spills are much easier to clean when they are fresh. Never place aluminum foil or a baking sheet on the bottom of the oven on top of the vents, which could block the heat and damage the burners.

Clean your oven regularly.

Despite your best care, ovens eventually get dirty. Clean your oven regularly, depending on how much you use the appliance. Otherwise, clean your oven at least semi-annually. Leaving burned food to continue to re-burn with every use will eventually make your oven work less efficiently. Lots of burned food may even affect the taste of any cooked meal.

Don't forget to clean your racks. It's easy to focus on the bottom and sides of your oven. And, for good reason – that is usually where all the food is but it's not the only place. Be sure to clean the racks while you're cleaning the rest of the oven.

Check your burners regularly.

If you see any debris, deformities or spots that glow brighter than the rest of the burner, replace the burner. A burner in poor condition may spark and produce flames if it shorts out, which may result in damage to the appliance. Stop using your oven and replace the burner/element.

Use the self-cleaning feature.

Most ovens have a self-cleaning feature, but very few people are familiar with how it works – self-cleaning produces very high heat, which effectively burns away any unclean areas. Self-cleaning takes a while and your oven will get extra hot – therefore, don't start a self-cleaning cycle if you want to use the oven in the next hour or two and never start a self-cleaning feature and then leave the house. In fact, because your oven produces extreme heat, pay attention to the cycle. If you have a digital display, the oven may indicate the status of completion. When the self-cleaning cycle is complete and the oven cools off, wipe down the inside of the oven, which should look close to brand new.

Inspect door gaskets.

Door gaskets are rubber or cloth ribbons attached to the door and frame to help seal in the heat. Over time, gaskets may deteriorate, allowing heat to seep through, and resulting in your oven not heating appropriately. Regularly inspect your oven's



gasket and replace it if necessary.



Garbage Disposer

Your garbage disposer is under your kitchen sink between the sink's drain and trap. Your garbage disposer shreds food into pieces small enough to pass through plumbing; food scraps represent 10% to 20% of household waste. About 50% of homes in the US have garbage disposals.

A high-quality garbage disposal will last grinding for about 10-12 years, depending on what you put in it and how well you take care of it. Estimated life also is dependent on the quality of the unit itself. A good 2/3 HP or 3/4 HP, with lots of stainless steel is optimal.

Operate the garbage disposal every couple of days.

Even if you don't have to grind any food scraps up, should run the appliance with cold water to keep the blades from rusting from lack of use. This also gives any food that might have stuck to the sides of the appliance from a previous use another chance to wash out.



Grind the right types of food.

Soft food can dull your garbage disposer blades and even worse, clog your drain. Therefore, don't put soft food in your garbage disposal: asparagus, artichoke leaves, banana skins, celery, chicken bones, coffee filters, cooked rice, eggshells, grease, green onion tops, onion skins, potato peels, shrimp shells, tea bags. Some items (bones) damage the appliance, plug the drain piping (banana peels), or load up the local wastewater utility.

Use cold water to grind food scraps.

Using cold water to grind helps to extend the life of your garbage disposal, while preventing plumbing and drain mishaps. Grind food scraps with cold water. Grease and oil solidify and more easily grind up before reaching your little P-trap. Don't grind food waste with hot water. Grease and oil liquefy, accumulate, and clog your drain (or your little P-trap).

Use hot water to clean your disposer.

Use hot water when you're cleaning the disposal. Mix equal parts white vinegar and baking soda and flush with boiling water. A sink full of hot water and dish-washing soap also are fine for cleaning the disposal. You can also pour warm water and lemon slices into your garbage disposer; wedges are high in citric acid, which boasts anti-bacterial properties, and their peels will scrub the disposer.

Use ice cubes and rock salt to seriously clean your disposer.

Fill the disposer with ice cubes and a cup of rock salt, operate the disposer for a minute for the natural abrasives to scrape away any debris inside the disposer. Pour a cup of vinegar and a half-cup of baking soda into the disposal to kill bacteria, then scrub the flaps with a brush.

Use cold water to unclog your disposer.

Use cold water to unclog your disposer. Do not use hot water to unclog a garbage disposer; the heat will melt fats and make unclogging the garbage disposer even more difficult to accomplish. Do not use bleach or commercial drain cleaner to unclog; chemicals might fly up and out when you turn on the disposer.

If the disposer stops, push the reset button.

If your garbage disposer isn't working, check the reset button on the appliance. Make sure the disposal switch is OFF and then climb under your kitchen sink, look up and push the red reset button. Sometimes the reset button doesn't restart the disposer. But pushing the button is easy and should always be your first course of action if the disposal stops working for no apparent reason.

Power off the disposer before working on the disposer.

Unplug the unit or cut power to the kitchen at the circuit breaker or fuse box before taking any action while you're working around the appliance – it has sharp blades. And never use your fingers to pull out any clogs. Avoid injury from the sharp blades by using pliers or tongs to remove any scraps that have not been finely ground up.

Washer

Washing machine maintenance helps you to avoid breakdowns that could stop the appliance from working or leak and lead to water damage.

Read the owner's manual.

Check the owner's manual for information on how to operate and maintain the appliance. Search online if the printed manual isn't available; most manufacturers maintain owner's manuals on their respective websites. If your appliance isn't working properly, your manual should include a trouble-shooting guide to help diagnose the issue.

Measure your detergent.

Read the owner's manual to make sure you use the correct type and amount of detergent for your machine. Too much soap may cause excess wear and tear on your washer; high-efficiency washers require special detergents.

Do not overload your washer.

Use the appropriate amount of water for the size of the load; many washers are self-sensing and adjust water flow automatically. Wash heavy or bulky items in small loads to minimize the stress on the washer.

Wash your washer.

Rinse away soap residue and buildup by running store-bought washing machine cleaner, or a solution of hot water, vinegar, and baking soda through an empty load. Leave the washer lid or door open between loads to dry out the unit and keep it smelling fresh. On front-loading washers, wipe down the rubber seal around the door after doing your laundry.

Clean your lint filter regularly.

Depending on your machine, the lint collector may be in the agitator tube, which is the center column of most machines, or near the top of the washtub. Keep it clean to help your washer run efficiently.

Check the water hoses regularly.

Check hoses regularly for bulging, cracking, fraying, and leaks around the ends. Replace rubber hoses with braided metal hoses.

Check clearances.

Your washer may vibrate and jump around during washing. You should periodically check that there are at least 4" between your washing machine and the wall to prevent hoses from kinking.

Keep your washer level.

If your washer isn't level, it may vibrate, rock, or walk across the floor during the spin cycle, which can damage the floor or the machine. Balance your washer by adjusting the legs.

Check your drip pan under your washing machine.

If your washer is above finished areas, make sure the washer has a drip pan to catch overflows.



Dryer

Regular dryer maintenance can optimize your dryer's efficiency and minimize fire hazards.

Read the owner's manual.

Check the owner's manual for information on how to operate and maintain the appliance. Search online if the printed manual isn't available; most manufacturers maintain owner's manuals on their respective websites. If your appliance isn't working properly, your manual should include a trouble-shooting guide to help diagnose the issue.

Clean your lint screen before or after every load.

Remove the screen from the dryer, wipe away the lint, and clean with a used fabric softener sheet.

Keep the lint screen area clean.

Clean the screen's housing cavity with a dryer lint brush. You can also use the attachment on your vacuum cleaner.

Clean the interior of the dryer .

Clean your dryer's interior monthly, even if there are no stains or residue. Unplug the dryer, clean the drum with a rag dipped in warm, soapy water or microfiber cloth with rubbing alcohol.

Vacuum behind and under the dryer.

Clean around the dryer every two or three months; moisture, dirt, and lint accumulate quickly.

Keep your dryer level.

If your dryer is not level, the rotating components will wear out sooner. Adjust the feet at the bottom of the dryer if the dryer moves or shakes when in use.

Inspect and clean your dryer vent.

According to the National Fire Protection Association, nearly 17,000 home clothes dryer fires are reported each year, causing 50+ deaths and 375+ injuries annually. The leading cause (35%) of dryer fires is the failure to clean dryer vents.

Check exterior exhaust.

Air should flow through the vent but is sometimes restricted by debris or nesting animals.

Pay attention to possible issues.

Watch your dryer for performance issues, e.g., dryer runs longer than expected, clothes are still wet or damp, dryer moves or shakes during operation.



AUTUMN MAINTENANCE CHECKLIST

PROPERTY

- ☐ Store or cover your outdoor furniture
- ☐ Winterize your mower and gas grill
- ☐ Place your snow shovel in the garage
- ☐ Aerate and fertilize your lawn
- ☐ Rake your lawn

EXTERIOR

- ☐ Check exterior door weatherproofing
- ☐ Repair missing caulk on windows/frames
- ☐ Check walks and driveway
- ☐ Check stairs and railings on porches/decks

ROOFING

- ☐ Inspect your roof
- ☐ Trim vegetation away from roof

STRUCTURE

- ☐ Check your chimneys for cracks
- ☐ Clean your chimney before first fire
- ☐ Check foundation for cracks
- ☐ Check humidity in attic and crawl spaces

WATER CONTROL

- ☐ Clean your gutters and spouts
- ☐ Direct downspout extenders away from house
- ☐ Clean your window wells
- ☐ Clear exterior drains
- ☐ Redirect settled grading away from house

INTERIOR

- ☐ Remove window screens
- ☐ Deep clean your kitchen
- ☐ Clean your wood stove
- ☐ Test your fire extinguisher

INSULATION AND VENTILATION

- ☐ Open and clean attic vents
- ☐ Check attic for proper insulation
- ☐ Check crawl space for proper insulation
- ☐ Clean your clothes dryer vent
- ☐ Keep your humidifier humming
- ☐ Change the direction of your ceiling fans

ELECTRICAL

- ☐ Test exterior outlets
- ☐ Check generator or backup power systems
- ☐ Test AFCI/GFCI outlets and breakers
- ☐ Test and change batteries in smoke detectors
- ☐ Replace smoke detectors 10+ years old
- ☐ Install or test carbon monoxide detectors

HVAC

- ☐ Change air filters
- ☐ Remove or cover window AC units
- ☐ Hire a contractor for a HVAC system checkup

PLUMBING

- ☐ Remove, drain, and store hoses
- ☐ Winterize exterior spigots
- ☐ Winterize your sprinkler system
- ☐ Check toilets and fixtures for leaks
- ☐ Get your septic tank cleaned (bi-annually)

FUEL

- ☐ Check your fuel tanks for odors and leaks
- ☐ Make sure to schedule fuel delivery

WINTER MAINTENANCE CHECKLIST ❄️

PROPERTY

- ☐ Check outdoor lighting
- ☐ Test your snow blower
- ☐ Stock up on emergency supplies
- ☐ Winterize sprinkler and pool

EXTERIOR

- ☐ Seal cracks around window frames
- ☐ Add weather-stripping around door frames
- ☐ Fill any open gaps with spray foam insulation
- ☐ Install storm windows and doors

ROOFING

- ☐ Prevent ice dams from forming
- ☐ Clear snow and ice from roof

STRUCTURE

- ☐ Test your chimney damper
- ☐ Check fireplace and chimneys for cracks
- ☐ Check humidity in attic and crawl spaces
- ☐ Seal unused fireplaces

WATER CONTROL

- ☐ Clean your gutters and spouts
- ☐ Direct downspout extenders away from house
- ☐ Clean your window wells and drains
- ☐ Test your sump pump for proper operation
- ☐ Redirect settled grading away from house

INTERIOR

- ☐ Remove screens and install storm windows
- ☐ Check for air leaks on a windy day
- ☐ Inspect window locking hardware

INSULATION AND VENTILATION

- ☐ Test your dehumidifier
- ☐ Check attic for proper insulation
- ☐ Check crawl space for proper insulation
- ☐ Clean your clothes dryer vent
- ☐ Keep your humidifier humming
- ☐ Reverse ceiling fans to direct heat downwards

ELECTRICAL

- ☐ Test your backup generator
- ☐ Test and change batteries in smoke detectors
- ☐ Replace smoke detectors 10+ years old
- ☐ Safely display holiday lighting

HVAC

- ☐ Change air filters
- ☐ Keep the heat on to prevent frozen pipes
- ☐ Keep everything away from your radiators
- ☐ Keep leaves and snow from HVAC equipment

PLUMBING

- ☐ Test your sump pump
- ☐ Check and flush your water heater
- ☐ Add an insulating blanket to your water heater
- ☐ Insulate pipes near or on the exterior
- ☐ Turn off and drain water from exterior faucets

FUEL

- ☐ Check your fuel supply
- ☐ Check your fuel tanks for odors and leaks

SPRING MAINTENANCE CHECKLIST

PROPERTY

- ☐ Tune up your mower and trimmer
- ☐ Treat your lawn with fertilizer and pest control
- ☐ Power wash and seal your deck and patio
- ☐ Remove your outdoor furniture from storage
- ☐ Check lawn sprinklers and irrigation systems

EXTERIOR

- ☐ Repair missing caulk on windows/frames
- ☐ Repair cracks in drives and walks
- ☐ Prime and paint areas with peeling paint
- ☐ Remove debris from yard

ROOFING

- ☐ Inspect your roof
- ☐ Check for cracked flashing and caulk seals

STRUCTURE

- ☐ Check your chimneys for cracks
- ☐ Check foundation for cracks
- ☐ Check humidity in attic and crawl spaces
- ☐ Check for signs of termites and other pests

WATER CONTROL

- ☐ Clean your gutters and spouts
- ☐ Direct downspout extenders away from house
- ☐ Clean your window wells and drains
- ☐ Test your sump pump for proper operation
- ☐ Redirect settled grading away from house

INTERIOR

- ☐ Remove storm windows and install screens
- ☐ Clean and lubricate your window channels
- ☐ Clean glass on windows and doors
- ☐ Reverse ceiling fans to direct heat upward

INSULATION AND VENTILATION

- ☐ Test your dehumidifier
- ☐ Check attic for proper insulation
- ☐ Check crawl space for proper insulation
- ☐ Clean your clothes dryer vent
- ☐ Keep your humidifier humming
- ☐ Reverse ceiling fans to direct heat upwards

ELECTRICAL

- ☐ Test exterior outlets
- ☐ Test AFCI/GFCI outlets and breakers
- ☐ Test and change batteries in smoke detectors
- ☐ Replace smoke detectors 10+ years old
- ☐ Check your landscaping lighting
- ☐ Consider updating your home security system

HVAC

- ☐ Change air filters
- ☐ Install window AC units and ensure proper seal
- ☐ Hire a contractor for a HVAC system checkup

PLUMBING

- ☐ Check all fixtures for leaks
- ☐ Check tile joints, grout, and caulk
- ☐ Check faucets and valves for leaks or damage
- ☐ Check toilets and fixtures for leaks
- ☐ Open and operate exterior hose faucets

FUEL

- ☐ Check your fuel tanks for odors and leaks

SUMMER MAINTENANCE CHECKLIST

PROPERTY

- ☐ Trim shrubs and plants from HVAC units
- ☐ Check property for ants, termites, bees
- ☐ Seal your driveway
- ☐ Power wash driveway and sidewalks
- ☐ Inspect outdoor play equipment

EXTERIOR

- ☐ Repair missing caulk on windows/frames
- ☐ Check the house for deteriorated siding
- ☐ Prime and paint areas with peeling paint
- ☐ Check deck for nail pops or loose treads

ROOFING

- ☐ Inspect your roof
- ☐ Check for cracked flashing and caulk seals

STRUCTURE

- ☐ Seal your garage floor
- ☐ Check humidity in attic and crawl spaces
- ☐ Check for signs of termites and other pests
- ☐ Remove gas and oil cans from the garage

WATER CONTROL

- ☐ Clean your gutters and spouts
- ☐ Direct downspout extenders away from house
- ☐ Clean your window wells and drains
- ☐ Test your sump pump for proper operation
- ☐ Redirect settled grading away from house

INTERIOR

- ☐ Search for signs of mildew
- ☐ Clean glass on windows, doors and frames
- ☐ Change your icemaker filter

INSULATION AND VENTILATION

- ☐ Clean and test your dehumidifier
- ☐ Check attic for proper insulation
- ☐ Check crawl space for proper insulation
- ☐ Clean your clothes dryer vent
- ☐ Keep your humidifier humming
- ☐ Check vents for birds and pests

ELECTRICAL

- ☐ Check wiring and cables for wear and tear
- ☐ Test AFCI/GFCI outlets and breakers
- ☐ Test and change batteries in smoke detectors
- ☐ Replace smoke detectors 10+ years old

HVAC

- ☐ Change air filters

PLUMBING

- ☐ Test your drinking water
- ☐ Check all fixtures for leaks
- ☐ Check tile joints, grout, and caulk
- ☐ Check faucets and valves for leaks or damage
- ☐ Check toilets and fixtures for leaks

FUEL

- ☐ Check your fuel tanks for odors and leaks

LIFE EXPECTANCIES

(ESTIMATED YEARS)

ROOFING

Fiberglass/asphalt 3-tab	15-20
Fiberglass architectural	25-35
Cedar shake/shingle	10-30
Slate, metal or clay/concrete tiles	50+
Single ply modified bitumen	15-20
EPDM/TPO/PVC	20-25

EXTERIOR WALLS

Aluminum	50+
Vinyl	35+
Hardboard/composite	20-30
Stucco, brick, veneers	Lifetime
Cement composite	50+

WINDOWS

Wood	50-75
Vinyl	25+
Aluminum/steel	40-50

GUTTERS/DOWNSPOUTS

Aluminum	30+
Galvanized metal or PVC	15-25
Copper	50-75

FUEL SERVICES

Interior tank	50-75
Exterior tank	25-50

WELL

Pump	15-25
Tank	15-25

SEPTIC

Tank (steel)	20-25
Tank (concrete)	30-50
Leach field	30-50

DECK

Wood	15-25
Composites	25-35

Estimated life expectancies are affected by material type and quality, installation quality, exposure to elements and, most importantly, regular maintenance.

INTERIOR

Plaster wall/ceiling	Lifetime
Drywall wall/ceiling	Lifetime
Cement board wall	Lifetime
Wood flooring	Lifetime
Laminate flooring	15-25
Linoleum flooring	10-15
Carpet flooring	6-10
Granite/marble	100+

HVAC

Hot air furnace (oil/gas)	15-25
Boiler	35-50
Heat pump	10-15
Baseboard (electric)	15-25
Radiant in-floor (electric)	15-25
Central split system cooling	10-15
Evaporative cooler	10-15
Circulator pump	20-30
Circulator fan	15-20
Humidifier	8-10

PLUMBING

Water service (public)	50+
Supply pipes	50+
Drain lines	25+
Water heater	10-20
Fixtures (builder grade)	15-20
Fixtures (higher quality)	25-50

ELECTRICAL

Service entrance cable	25-40
Electrical panel	Lifetime
Electrical wiring	60+

APPLIANCES

Refrigerator	10-20
Dishwasher	5-10
Range/cooktop	10-20
Garbage disposer	8-10
Washer	8-10
Dryer	10-15