

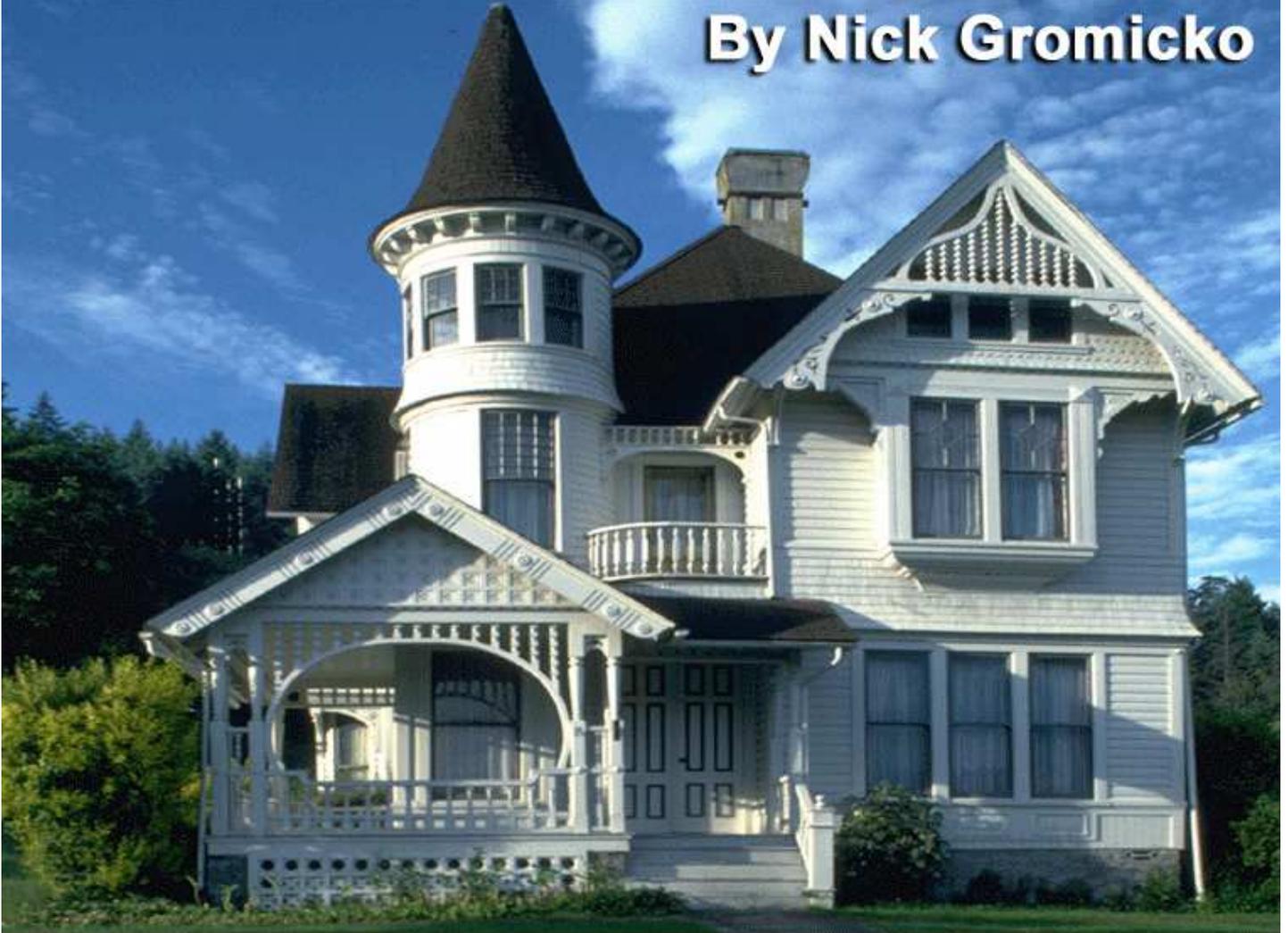


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HOME CARE GUIDE

By Nick Gromicko



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Introduction



Thank you for choosing to download my book. I don't think that a home owner's manual should necessarily be a dramatic fast-paced adventure and so I've tried to keep it simple and straightforward.

I'll cover everything from basic home safety to regular home maintenance. Included at the end of this book are some checklists you can print out and use as regular checklists around your home.

We'll start by covering basic household emergencies and then work our way through plumbing, electrical and all the other things you should be aware of within your home.

You should keep in mind that this isn't a repair manual. If your house has a problem then you really should contact a professional.

What this book is really all about is what to look for and how to avoid the basic problems that occur around the home.

So with all of that in mind, I'll thank you again for choosing to download my book. Feel free to share it with friends.

And of course, if you have any questions about your home and would like me to inspect your house to help you avoid the critical problems that inevitably and eventually strike most homeowners – Call me at the number provided on the cover of this book – I can help you better understand your home and address potential problems before they become serious.

I'm a Certified Home Inspector and you can rest easy knowing that when I examine your home you'll get a full report presented in a clear, complete and professional manner.

I'll take the appropriate measures to make sure that you are very familiar with the home and the condition of its major systems.

Home ownership is a wonderful experience but it's not without its pitfalls. The good news is that the right information can help to ensure that the pitfalls are minimized and truly maximize the enjoyment of your home.

Thanks again for choosing my book; I hope you find it helpful.

Emergencies Overview



Emergencies can strike, despite the best precautions. You can prevent an emergency from becoming a catastrophe by learning what to do. This section discusses how to react during a fire, plumbing emergency, electrical emergency and gas leak.

Read this section and discuss it with all members of your household so that everyone is prepared for an emergency.

You should also review this section with your household once a year so you are continually prepared for an emergency.

The first step during an electrical problem, water leak or gas leak is to shut off the flow of electricity, water or gas to your home. Every member of your household should know how to find these shutoff valves and switches.

You should keep basic emergency supplies such as a portable radio, a flashlight, extra batteries, a first-aid kit and a first-aid manual on hand at all times.

These supplies will be welcomed if a natural disaster occurs. In addition, the first-aid kit and first-aid manual are good to have on hand for household use.

Emergency Shutoff Valve & Switch Locations

Main water shutoff valves are frequently located near water meters. Your water meter is likely outside near the street. Main water shutoff valves can also be located inside your home beneath a floor access panel or in a basement. Floor access panels are commonly found in closet floors. Look for a large valve in the middle of a pipe.

The main electrical disconnect should be located in or near the circuit panel box. The circuit panel box should be located in the garage, utility room, and utility closet or similar out of the way location.

If you have natural gas service, the gas shutoff valve will likely be located on the gas inlet pipe next to the gas meter.

Fire Precautions

Precautions and plans made today can prevent a fire-related tragedy tomorrow. Several steps for avoiding fire risks are discussed below. What to do if a fire does strike is also discussed.

Have A Plan Of Escape

The first step during a fire is to get everyone out of the house. Planning your escape routes now can prevent needless loss of life during a fire.

- Map out escape routes from each room in your home with your family. Pay particular attention to escape routes from bedrooms.
- Agree on a central area outside your house to meet after evacuation so that everyone can be accounted for. This may be a neighbor's front door or a neighborhood landmark. The meeting place should be a place that children or injured people can reach without undue difficulty and yet still be safe from danger. Meeting at the designated place can prevent a tragedy caused by not knowing whether everyone has escaped from the building.
- Have safety ladders near windows, if ladders are needed.
- Smoke detectors are an excellent early warning device. They are your first line of defense if a fire breaks out at night. Test your detectors on the first day of each month. Replace the batteries in the spring and fall when you change your clocks.
- Keep stairs, doorways and hallways free from obstructions. In dense smoke, it may be difficult to see items blocking an escape route.

Fire Extinguisher

Every kitchen should have a multipurpose fire extinguisher. Cooking is a leading cause of fire. If a fire breaks out in the kitchen, you will want an extinguisher close at hand. If there is a fire in another part of the home, you will know that an extinguisher can be found in the kitchen.

Read the operating instructions on the side of the extinguisher now so that you will know how to use it if needed. Finally, have the extinguisher serviced at the time recommended by the manufacturer. The manufacturer's service recommendations should be set out on the side of your fire extinguisher.

Avoiding Fire Risks

As discussed above, cooking is a major cause of fire. Cooking oil can ignite when it reaches the right temperature. Cooking oil can also splatter and ignite items near the stove. Pot holders, paper napkins, paper towels, curtains, loose clothes and long hair can catch fire in this manner. Do not leave frying pans unattended and keep the stove area clear of clutter.

Cigarette smoking is another leading cause of home fires. Never smoke in bed, do not rest ashtrays on chair arms and be careful when emptying ashtrays in the trash.

Chimney fires can be avoided by regularly cleaning your chimney. Maintaining your chimney is discussed at [this link](#). As an additional precaution, do not burn large amounts of newspaper or other paper in your fireplace or wood stove.

Other fires can be avoided by common sense precautions. Inspect electrical appliances for frayed wiring. Replace all defective appliance cords. Electrical maintenance and inspecting appliance cords are discussed at [this link](#). Keep your garage clear of rubbish and wood shavings. Dispose of oily rags that can ignite by spontaneous combustion. Store flammable fuels, chemicals and paints outside.

In The Event Of Fire

If a fire breaks out, immediately:

- Get everyone out of the house.
- Meet at the designated area to count heads.
- Call the fire department from a neighbor's home.

If you discover a small fire that is still contained to its source, you can do the following:

Cooking pan fire: Cover small oil or grease fire in a cooking pan with a lid to smother the flames. Next, turn off heat to the pan. Do not use water on oil or grease fire. Water will spread the flames. Turn off the kitchen exhaust fan. The fan can suck fire through the fan and ignite the outside of your home.

Oven fire: Turn off the oven and allow the fire to burn itself out. Do not open the oven door - fresh air will feed the fire and cause it to continue to burn.

Electrical fires: Do not use water on an electrical fire. Water and electricity can be fatal. If you discover an electrical fire early, use a multipurpose fire extinguisher. Otherwise, get everyone out of the house, meet at the designated area and call the fire department.

Plumbing Emergencies

During plumbing emergencies, the first step is to stop the flow of water immediately. Do this by turning off the main water shutoff valve or the shutoff valve for the particular fixture or appliance. You and each member of your family should know the location of these shutoff valves.

Locating the main water shutoff valve is discussed [this link](#). Shutoff valves for fixtures and appliances can usually be found underneath sinks and toilets and behind clothes washers, water heaters and other appliances.

If the emergency is limited to a specific appliance or fixture, look for its shutoff valve and close the valve by turning clockwise. Turn off the main shutoff valve if the problem is a leaking pipe or if there is no shutoff valve for the particular fixture or appliance.

Leaks

If a pipe leaks, breaks or if a joint should loosen, turn off the main shutoff valve to prevent water damage. If you turn off the main water supply, turn off your hot water heater by turning off the circuit breakers and the gas supply to the hot water heater. Failure to do so can cause the hot water heater to overheat, damage the heating elements and injure anyone who unknowingly turns on a hot water faucet.

Next, call a plumber or make temporary repairs you to stop the leak. Have the pipe replaced or the joint re-soldered when it is convenient for a professional plumber to do so. If your washing machine, dishwasher or other water-using appliance appears to leak, first check to see that the trap through which the appliance drains is completely open.

Sometimes a partially-clogged drain can cause an overflow within the appliance. If the drain is clear, consult the appropriate appliance repair person.

Frozen Pipes

Pipe insulation and freeze-resistant outside faucets are available to reduce the risk of freezing. Even with these products, problems can still occur.

If a pipe should freeze, thaw the pipe slowly with a hair dryer or towels soaked in hot water. Heating the pipe slowly may prevent the pipe from breaking. Do not heat the pipe with a torch. This has been the cause of many fires.

To prevent frozen pipes, drain water from outdoor faucets and pipes, remove and store outdoor hoses and never leave your home unheated during cold weather.

Clogged Drains

When the drain pipe from a tub, sink, shower or water-using appliance becomes clogged, turn off the faucet or appliance that flows into the drain.

Next, try to remove the obstruction with a rubber plunger. The rubber cup of the plunger should cover the drain opening and the water should come well up over the edge of the cup. Work the plunger up and down rhythmically 10 to 20 times in succession to build up pressure in the pipe. This does more good than sporadic plunges.

If the plunger does not work, call a plumber. Do not attempt using a snake or other tools. They can damage expensive fixtures. Never use drain cleaner to open a totally clogged drain. It will mix with the water to form a caustic solution.

Clogged Toilet

If a toilet overflows, stop the water flow by reaching inside the toilet tank and pushing the tank stopper down into its valve seat. Hold until the tank fills and the water stops. Next, turn off the shutoff valve underneath the toilet or turn off the main water shutoff valve. Unclog the toilet.

A clogged toilet should be treated almost the same as a clogged drain. The trap is built into the toilet and is therefore less accessible. Try to unclog the drain with a plunger. If that does not work, call a plumber.

Faucet Malfunction

If a faucet won't shut off, turn off the water at the shutoff valve underneath the sink immediately. If there is no valve, turn off the main water supply shutoff valve. Call a plumber or repair the faucet yourself. There is a number of plumbing repair books on the market for do-it-yourselfers.

You should not attempt to repair cartridge faucets yourself. These faucets are exceptionally advanced and quite expensive. Call a professional plumber if you have any problems with a cartridge faucet.

If steaming water flows from a hot water faucet, do not touch the hot water faucet. Leave the faucet running. Turn off the electricity or gas supply to the hot water heater. Let the faucet run until cold water flows from the faucet (the water in the hot water heater is no longer overheated), then call a plumbing professional to repair the faucet or the hot water heater's thermostat.

Electrical Emergencies

Electrical emergencies such as an appliance malfunction, a power failure in your home or a neighborhood power outage can occur at any time.

Know how to turn off the electrical power to your home and how to reset individual circuit breakers.

If you have the skill to make electrical repairs, turn off the electrical power before making any repairs. Never work on a live circuit, fixture, receptacle or switch. Shut off the power first and test the circuit carefully with a circuit tester to be sure the power is turned off.

Instruction on electrical repairs is beyond the scope of this manual. If you do not have the skill and experience to make electrical repairs, call a professional electrician for service.

Main Disconnect

Turn off the electrical power to your house by shutting off the main disconnect. The main disconnect is one or more main fuses or circuit breakers located on the circuit panel.

If the circuit panel is located in a laundry room or some other place where there could be water on the floor, use rubber gloves when shutting off the main disconnect. Keep a pair of rubber gloves near the circuit panel at all times for this purpose.

Be sure everyone in your household knows where the circuit breaker panel is located to shut off the power.

Power Outage

If the power goes out suddenly in your home, decide whether the outage affects just your home or the entire neighborhood. If it is a neighborhood outage, notify your electrical utility.

If the electrical outage affects your home only, check for and reset tripped circuit breakers. If a breaker immediately trips again, call a professional electrician to test your electrical system.

Turn off or disconnect all motor-driven and electronic appliances to avoid possible damage from either inadequate power or a sudden electrical surge when power is restored. The furnace blower motor can be turned off by turning off the circuit breaker for the furnace.

Motors for dishwashers, clothes washers, clothes dryers, garbage disposals, range fans, sump pumps, refrigerators and other appliances can be disconnected by turning off or unplugging the appliance. Computers, televisions, video recorders, stereos and other electronic equipment should also be turned off. Turn on a radio and a lamp to alert you when service is restored.

After power has been restored, it should be safe to turn on all appliances. You can retard food spoilage by not opening refrigerators or freezers during the outage unless absolutely necessary. Food in a tightly packed freezer will stay frozen for up to 48 hours if the door has been kept closed. Food in a partially filled freezer may keep for 24 hours. If you are in doubt about the safety of frozen food after a power outage, throw it out.

Always have flashlights, extra batteries, candles, matches and a battery-powered transistor radio handy in case of power failures. Store these items in an accessible place known to all family members. If any of these items are used for any other purpose, make sure they are promptly returned. Finally, keep lit candles away from drafts, flammable objects and children.

Sparking Appliance

Do not touch a smoking or sparking appliance. Instead, cut off power to the appliance by unplugging the appliance, turning off the wall switch controlling the appliance or turning off the circuit breaker for the appliance. Allow the appliance to cool, then take it to a repair shop or call a professional service representative to repair the appliance.

If the appliance catches fire, get everyone out of the house, meet at your designated area (see link) and call the fire department from a neighbor's home. Do not use water on an electrical fire, it can be fatal. If you discover an electrical fire early, use a multipurpose fire extinguisher on the flames.

If an appliance's electrical plug smokes or sparks, unplug the appliance by pulling its cord. Do not touch the plug itself. After the plug cools, inspect the plug and cord for damage. If they are damaged, replace the plug and cord or have them replaced by a professional service representative. Reset any tripped circuit breakers.

If the plug and cord appear to be OK and there are no tripped circuit breakers, the electrical outlet may be at fault. Test the outlet by plugging another appliance you know works properly into the receptacle. If that plug sparks too, replace the outlet or have it replaced by a professional electrician. If the new appliance does not cause sparks, then the original appliance is probably faulty and should be repaired or replaced.

Gas Leaks

Your home may be serviced with natural or bottled gas. Gas is a safe, clean, economical energy source for appliances such as furnaces, boilers, water heaters, dryers, cook tops, fireplaces and barbecues. Although gas appliances are wonderful conveniences, gas must be treated with respect.

If you smell gas inside or outside your home, hear gas escaping from a broken line or see a broken gas line, you should:

Get everyone out of and away from your home immediately.

Call your local gas company or your fire department from a neighbor's house.

Do not light a match, turn a light on or off, use a telephone (portable, cellular or regular) or operate any electrical switch or electronic device - flames or electric sparks can ignite the leaking gas.

Leave as many windows and doors open as possible - the gas will rise and dissipate harmlessly outside.

If the gas leak is inside your home, you can turn off your gas supply at the gas shutoff valve after everyone is out of the house. If you prefer, you can have your utility company turn off the gas

The gas shutoff valve should be located on the pipe leading into the gas meter. Turn the valve a quarter-turn in either direction with an adjustable-end or "crescent" wrench. The gas is off when the valve is perpendicular to the pipe.

If the gas leak is outside your home, keep away from the leak area and away from your house. Do not attempt to shut off the gas supply. Your utility company will turn off the gas.

Once your gas is off, wait for your local gas company to restore your service.

Inspection



Exterior Maintenance

Your Home's exterior shelters you and your home from the sun, wind and rain. These forces of nature can be quite destructive. Your roof, gutters, siding, windows and doors are your home's first line of defense. Protect your home by inspecting and maintaining its exterior regularly.

If you discover and repair exterior problems early, you can avoid much larger problems later on. This Home Owner's Manual focuses on inspection and preventative maintenance. Repairs are not discussed. There are many good home repair books at your local library or book store. If you discover a problem, consult one of these books or call a home repair professional.

Remember that you really should consult a professional contractor for most repair tasks.

Roof Maintenance

It's easy to ignore your roof unless it begins to leak. Then the roof demands immediate attention. If you inspect your roof periodically, however, you can correct minor problems before they cause major damage.

Do not go up on your roof unless you feel comfortable working from heights, know how to safely use an extension ladder and have the necessary tools and equipment. If you have a tile or slate roof, do not go on your roof for any reason. These roofs are easily damaged. Tiles and slate shingles can be broken by the weight of a person. Call a professional contractor to perform roof maintenance if you are uncomfortable with heights, don't like handling extension ladders, have a tile or slate roof or have a steeply pitched roof.

Roof Materials

A wide variety of roofing materials are used on today's homes. Some of the more common materials are discussed below. Inspecting your roof is also discussed. If you discover signs of a leak or other roof problem, call a professional roofing contractor immediately before the problem and any related damage becomes worse.

Many roofing materials come with manufacturer's warranties. However, in order to make a claim on a warranty, you may need to know the manufacturer's name, the place purchased and the installer's name. In addition, if roof repairs are necessary, you will want to use roof materials that are the same brand, color and size as the original. If you record this information on page 1-5 when repairing or replacing your roof, it will be easier to assert a warranty claim or purchase replacement materials when needed.

Composition Shingles

The most common roofing material is composition shingles. These shingles are made of organic or fiberglass material impregnated with asphalt. Colored mineral granules are embedded on the surface of the shingles. Many composition shingles are notched at regular intervals to form tabs. This creates the appearance of smaller shingles. Composition shingles should last for 15 to 30 years.

During the roof inspection discussed below, you should look for shingles that are cracked, torn or curled. In addition, look for bald spots and accumulation of granules in the gutters. If you find damage, arrange to have the roof repaired as soon as possible. If the damage is extensive, it may be time to replace the entire roof.

When repairing the roof, use shingles that remain from the original roof installation or try to purchase new shingles that are the same brand, color and size. As discussed above, recording this information on page 1-5 when repairing or replacing your roof will make it easier to purchase replacement shingles when needed.

Wood Shingles or Shakes

Wood shingles and shakes are popular in many areas. Both shingles and shakes are made from western red cedar. Wood shingles are cut by a saw so they have a smooth, finished appearance. Shingles come in random widths and 16, 18 or 24 inch lengths. Shakes are thicker than shingles and are split by machine or by hand for a rough-hewn look. Shakes also come in random widths, with 18 or 24 inch lengths.

Wood shingles and shakes usually last between 15 and 25 years. You can add to your wood roof's life by hiring a professional roofing contractor to treat the roof with preservatives every five years to prevent decay. Wood shakes should be replaced when the wood crumbles easily between your fingers.

Look for moss or mildew growing on the wood shingles or shakes during the roof inspection discussed below. Tiny roots from these organisms penetrate the wood, allowing water and the elements to damage the shingles or shakes and speeding decay. If you find moss or mildew on wood roofing, call a professional roofing contractor to treat your roof.

During the roof inspection, you should also look for shingles or shakes that are curled, broken or split or that have been lifted by the wind. If you find damage, arrange to have the roof repaired as soon as possible. If the damage is extensive, it may be time to replace the entire roof.

Ceramic Tiles

Tile roofs are high quality, no-maintenance roofs. A tile roof should last 20 to 50 years or longer. It is not uncommon for tile roof manufacturers to guarantee their products for 40 or 50 years.

One precaution, do not walk on a tile roof for any reason. The weight of a person can break the tiles. Broken tiles may allow water to leak into your home. Call a home maintenance professional if it is necessary to go up on your tile roof for any reason.

If you notice a buildup of moss or debris on your roof tiles during the inspection discussed below, you can have a professional contractor rinse your roof with a pressure washer. However, do not walk on the roof yourself to perform this task.

During your roof inspection, look for any tiles that may be damaged or broken. If any repairs appear to be needed, call a professional roofing contractor.

Cement-Fiber Shingles

Cement-fiber shingles are a relatively new roofing material. As the name suggests, cement is mixed with a fiber, such as wood chips. The result is a durable, versatile, light weight, long lasting roof material. Cement-fiber shingles can be formed to resemble natural materials such as wood shakes, slate shingles and clay tiles or different looks can be created.

Manufacturer's warranties of 30 to 50 years indicate the long life of this product. Like tile roofs, little maintenance is required for cement-fiber shingles.

If you notice a buildup of moss or debris on the shingles during the inspection discussed below, you can have a professional contractor rinse your roof with a pressure washer. During your roof inspection, look for any shingles that may be damaged or broken. If any repairs appear to be needed, call a professional roofing contractor.

A unique trait of cement products is a white powder that can form on the product's surface. This natural process is known as efflorescence. If a powder forms on your shingles, you can have the shingles rinsed to restore their natural state.

Slate Shingles

Slate shingles are a natural, long lasting roofing material. They can last for 30 to 100 years, or longer.

Although slate shingles are extremely durable, they are brittle and expensive to replace. Do not walk on your slate roof for any reason. If you have any problems with your roof, contact a professional roofing contractor that is experienced with slate roofs. Do not settle for anything less than an experienced slate roofing contractor.

If you notice a buildup of moss or debris on the shingles during the inspection discussed below, you can have a professional contractor rinse your roof with a pressure washer. During your roof inspection, look for any shingles that may be damaged or broken. If repairs are needed, call an experienced slate roofing contractor.

Metal Roofing

Metal roofs come in a variety of materials and shapes. Aluminum, steel and copper are common metal roofing materials for homes. Aluminum does not rust and is coated in a variety of colors. Steel is also color coated for style and corrosion protection. Since copper does not rust, copper roofs are not coated. This allows the distinctive color of the copper to add to the character of the home. Metal roofing can be formed into shingles, tiles and sheets.

If properly maintained, a metal roof should last 40 years or longer. When inspecting a metal roof, as discussed below, look for rust spots. If rust appears, you can preserve your roof by having a professional roofing contractor scrape the corrosion off and paint the roof with special paint or compounds. Re-paint the roof as needed to preserve its life.

Inspect a metal sheet roof by looking for cracks or open joints at the soldered seams. As the metal sheets expand and contract, stress is placed on these joints. The stress can break the seal and cause leaks. Have any problems repaired by a professional roofer.

When inspecting metal shingles or tiles; look for loose, missing or damaged shingles or tiles. Have any problems repaired by a professional roofer.

Built-up Roofs

Built-up or “tar-and-gravel” roofs are found on flat or low-sloping roofs. Layers of roofing felt are covered with alternating layers of roofing tar to form a continuous sealed surface. The top layer is covered with rock or crushed gravel to protect the roof from the sun, wind and rain. This roof is given its name because it is “built-up” into several layers.

Built-up roofs should be inspected regularly as discussed below. During the inspection, look for patched areas, cracking, blistering, surface erosion, alligating and wrinkling. Look for cracks at roof joints, near roof mounted structures and the flanged metal strip along the roof perimeter. All leaks, cracks, blisters and other problem areas should be sealed or patched and sealed.

Do not step on any blisters when walking on your roof. Blisters are usually caused by air or water vapor trapped between layers of roofing felt. A person’s weight on a blister can crack the roofing felt.

Record the location of any cracked or patched areas on a work sheet. Look inside your home for leaks around the areas noted on the work sheet.

Built-up roofs should last 10 to 20 years, depending on the sun’s intensity. Erosion of the gravel, dry felt and blistering are signs that your roof is due to be replaced.

Roll Roofing

Mineral felt or roll roofing is used on flat or low sloped roofs. The rolls that have been impregnated with asphalt. Colored mineral granules may be embedded on the surface of the material. One or two layers of the roofing are applied over the roof’s surface. Joints are sealed or the entire surface is coated with tar.

During the inspection discussed below, look for blisters, cracks and eroded, torn or curled sections. Look for cracks at roof joints, near roof mounted structures and along the roof perimeter. All leaks, cracks, blisters and other problem areas should be sealed or patched and sealed.

Do not step on any blisters when walking on your roof. Blisters are usually caused by air or water vapor trapped between layers of roofing felt. A person’s weight on a blister can crack the roofing felt.

Record the location of any cracked or patched areas on a work sheet. Look inside your home for leaks around the areas noted on the work sheet.

Roll roofs should last 10 years or so, depending on the sun’s intensity in your area. Erosion of the surface, dry felt and blistering are signs that your roof is due to be replaced.

Membrane Roofing

Single-ply membrane roofing is a relatively new material for flat or low sloped roofs. A single sheet of thin rubber or resilient plastic is glued or fastened to the roof’s surface. A layer of stones may be added for extra protection.

During the inspection discussed below, look for cuts, gaps, blisters, wrinkles and open seams in the protective coating. Look along joints, near roof mounted structures and along the roof perimeter. All leaks, cuts, blisters and other problem areas should be sealed or patched and sealed by a roofing contractor familiar with the material. Your membrane roof should last 15 to 25 years.

Roof Inspection

You should inspect your roof each fall before the winter weather moves in, after heavy wind or snow storms to inspect for damage and again in the spring to look for winter damage. If you discover any problems, call roofing professional.

Inspecting from inside: Begin your roof inspection in the attic. Examine the main roof ridge, rafters and sheathing for moisture or signs of moisture such as water stains, dark colored areas of wet wood and soft spots that may indicate dry rot. Use a strong flashlight to inspect visually, then use a knife or thin screwdriver to probe for dry rot. Mark any problem areas with chalk so you can find the areas later.

If it is necessary to remove fiberglass insulation to examine the sheathing, wear loose clothing, gloves, goggles and a respirator for protection.

Next, turn off the lights and look for shafts of light coming through the roof. This is a sign of holes, cracks or other problems. Small shafts of light coming in at an angle indicate cracks that may swell shut when shingles are wet. If you see any holes above you, drive nails or poke wire through the holes so they will be visible from the roof's surface.

Inspecting pitched roofs. You should also inspect your roof from the outside. It is often safer and more convenient to inspect sloped or pitched roofs from the ground. Step away from your home until you are able to see all exposed sections of your roof. Then, use binoculars to visually inspect all portions of your roof. Binoculars allow you to get a close-up view of your roof without the inconvenience of climbing up and moving around on a sloped surface.

By using binoculars, you avoid damaging your roof by walking on it. Some roofing materials are more easily damaged by the weight of a person than others. Tile and slate roofs, for example, can break easily when walked on. No matter what the material, you should avoid walking on your roof if you can.

During the inspection, check the roof structure first by looking at the lines of the ridge and rafters. The ridge line should be perfectly horizontal. Inspect the line of the rafters by looking along the plane of each roof section. The plane should be straight. If either the ridge line or the plane of a roof section sags, call a professional contractor. You may have a structural problem.

Next, inspect the roof's surface. Look for the signs of wear and damage discussed above for the particular roofing material or materials found on your home. Discuss any problems with a professional roofing contractor. Repair or replace any defective roof material. If the damage is extensive, consider replacing the entire roof.

Inspecting flat roofs: Flat roofs are not visible from the ground. If you have a flat roof, you must inspect it from the roof itself. If your roof is higher than a single story, look for a way to access the roof from a door, window, access panel or other interior access. If the roof is higher than one story and does not have an interior access, then it is best to have the roof inspected by a professional roofer.

If you use a ladder to access your single story flat roof, you do so at your own risk. Follow all safety precautions recommended by the ladder's manufacturer. If you have any questions regarding ladder safety, consult a home repair book or magazine that discusses ladder safety or talk to an experienced building material merchant that carries ladders.

During your inspection, look for puddles of water. Although some people used to believe standing water on a flat roof would help keep the home cool during the summer, the disadvantages far outweigh any cooling benefits. Insects, plants and fungi can breed and grow in the water. Roots from growing plants can puncture

your roofing material. During the winter, freezing water can cause serious roof damage. If you see standing water or signs of past water puddles, discuss this matter with a professional roofing contractor.

Your flat roof should drain along the roof edges and into downspouts or through drains located in the roof itself. Gutter and downspout maintenance is discussed later in this section. If your roof has one or more interior drains, inspect the drains to make sure they flow freely and are not clogged with debris.

Roof Flashings

Flashing protects your roof from leaks around protrusions and roof joints. These are your roof's vulnerable points. Flashing is the sheet metal or other durable material that protects these joints from water penetration.

You will find flashing sealing roof valleys, roof and plumbing vents, around chimneys, along eaves and anywhere water can seep through open joints into the roof sheathing. The flashing's edges are sometimes sealed with caulk or roof cement. Flashing is a key to keeping your roof watertight.

Roof leaks are common along flashed areas. If you ever have a leaking roof, be sure to remember to inspect your flashing. You do not want to replace your entire roof when you can stop the leak by re-caulking a dried out flashing seam. With proper maintenance, you can guard against flashing leaks.

Inspect your roof flashing twice a year during the roof inspection discussed in the previous section. Once again, if you have a pitched roof, use binoculars to perform a visual inspection. Inspect those areas listed above where flashing is likely. Have a professional roofing contractor repair any problems.

During the inspection, look for any flashing that has buckled or pulled away from the joints it is supposed to protect. Next, look for holes and rust spots along the flashing surface. Small holes and rust patches can be patched or sealed. You should have the flashing replaced if you find large holes or extensive corrosion. Also look for loose nails and exposed nail heads. They should be re-nailed and covered with caulk or roofing cement. Finally, examine the flashing seams for dried or cracked roofing cement. Re-seal as necessary.

Gutters and Downspouts

Gutters and downspouts collect water from the roof and carry it away from the house. This prevents topsoil erosion around concrete footings, basement flooding, siding and woodwork decay, paint failure, wall damage and other problems. Uneven soil moisture caused by water runoff can even cause serious foundation problems. Gutters and downspouts that leak or that is clogged with debris cannot perform their vital task. Therefore, it is important that you inspect, clean and maintain your gutters and downspouts regularly.

When inspecting your roof with binoculars, check your gutters for any loose spikes or support straps and have repaired as necessary. Gutters should slope gently towards the downspouts. Reset gutters that sag or slope improperly. Inspect seams, corner joints and downspout joints for proper fit. These joints should be repaired or sealed with caulk if they allow water to leak.

Gutters collect leaves, sticks, seed pods, mineral granules from roofing products and other debris. They should be cleaned in the fall after most of the leaves have fallen and again in the spring after the trees have bloomed. If you have low gutters and know how to safely use extension ladders, you may feel comfortable performing this task yourself. If you have a multistory home, don't like working from heights or don't like handling extension ladders, you may want to hire a contractor to clean your gutters.

During the gutter cleaning, the wood boards behind the gutters should be inspected for dry rot. Probe the boards with a knife or thin screwdriver for soft spots. Any decay should be repaired.

Plastic or metal screens can be installed over your gutters to keep them free from debris. These screens can be effective but the screens themselves must be cleaned. You must also continue to inspect your gutters and downspouts and clean as necessary.

You should also inspect your downspouts. Repair or replace any disconnected downspouts. Check for corrosion, clogged sections, improper connections, loose straps and missing sections. Repair any problems. Make sure the downspouts direct water away from your home. There are many ways to modify the downspouts to direct water away from your home. Inspect your gutters and downspouts during rainstorms. Look for leaks from holes or joints and for water pouring over the sides. Make notes of any problems and repair when the weather permits.

Chimney

Your chimney should be cleaned and inspected each year after the burning season ends. This reduces the risk of fire and increases chimney efficiency. A hot fire can ignite obstructions such as bird nests, leaves and thick deposits of soot and tar and turn your chimney into a torch. Such obstructions will also restrict the chimney's draft and reduce your fireplace or wood stove's efficiency.

Cleaning your chimney is a messy job requiring special tools. You may want to hire a professional chimney sweep to clean your chimney. If you want to tackle this chore yourself, it is possible to clean the chimney from inside the house through the fireplace. A number of home maintenance books are available at local bookstores to assist you.

If you have a masonry chimney, inspect the chimney in the same manner as brick, block and stone siding discussed on page 4-10. If you ever notice that the chimney appears to be "pulling away from the house," is leaning, has bulging sections or has large cracks, have the condition examined by a contractor. It may indicate structural problems.

Siding

Your home is protected from the sun, wind, and rain by an exterior skin of wooden, masonry or manufactured siding. This siding should last the life of your home if properly maintained. However, even the most durable sidings can fail if the home owner does not follow through with a regular maintenance program. This section discusses siding materials and how you can maintain those materials.

Wood Siding

Wood siding is found on many homes. Wood shingles, shakes, boards and panels come in a variety of shapes, styles, sizes, patterns and species. Yet, the various wood sidings are more alike than they are different. Wood siding is susceptible to water and insect damage. The first line of defense is paint or stain. The second line of defense is regular inspection and maintenance and periodic cleaning as discussed below.

Normal wood siding requires painting every 2 to 5 years. The wood siding should last as long as your home if properly maintained. Inspect and clean your wood siding regularly.

During the wood siding inspection, you should check for the following:

Paint

Protect your wood siding by inspecting for paint problems twice a year and repainting every five years, or as necessary.

Peeling or blistering paint is usually caused by warm, moist vapor from the house flowing through the walls, reaching the cold sheathing and condensing. Just a few drops of water between the siding and the film of paint will cause paint to blister and peel. It may be necessary to install vents in the siding to remedy the moisture problem. The defective areas should be properly prepared and repainted.

If you observe other paint problems, such as worn, flaking, and wrinkling or “alligatoring” paint, properly prepare and repaint the defective area.

Ground Clearance

Untreated wood must not be in contact with the ground. Moisture from the soil can cause decay and insects can gain entry to your siding. Examine along the base of your home to make sure you have at least six to eight inches of clearance between the ground and any wood siding or wood trim. If necessary, re-grade your soil away from any wood.

Stain

Stain also protects wood siding from moisture and insects. However, as the stain fades, so does its weather and insect protection properties. Re-stain your siding every five to seven years, or as necessary, to restore color and preserve your siding.

Dry Rot and Termite Damage

Dry rot is a fungus that causes wood to crumble. Termites destroy wood by chewing out its interior. Probe the edges of the wood siding with a knife or thin screw driver and look for soft, spongy spots. Pay particular attention to any part of the siding that was close to the ground or in contact with the ground.

In addition, check for visible evidence of termites. Look for their translucent one-half inch-long wings or the mud tubes they sometimes build. If you find evidence of dry rot or termites, consult a licensed termite inspector or pest control professional.

If you spot dry rot and termite problems early, you can often prevent serious damage.

Holes and Split, Warped or Loose Siding

Simple surface problems such as holes in the wood, split or cracked boards, warped or buckled boards and loose siding should be repaired as soon as they appear.

Water will work its way through these defects into the interior wall where rotting can take place undetected. Severely damaged board siding must be replaced. Determine the cause of any serious damage before replacing siding. If moisture is causing the problem, find the source by checking for deteriorating roofing, leaking gutters or downspouts and poor drainage. Consult a professional contractor.

Stucco Siding

Stucco is a masonry siding made from sand, cement and water. It is applied over wire lath fastened to wood sheathing. Color is added to the final coat or the stucco is painted after it dries. Stucco is a durable, relatively maintenance-free siding. Elastomeric paint can be applied over the stucco to make it even more durable and easier to maintain. Elastomeric paint is a rubberized paint that protects and preserves the stucco.

You should inspect your stucco siding at least once and preferably twice a year. Early spring is a good time for the first inspection. You will be able to spot any winter damage. In addition, shrubs around your home will not yet have leafed, enabling you to easily view your siding. During this inspection, look for hairline cracks in the stucco, vertical cracks running from the roof line or door or window openings, and bulges or holes in the stucco. Defects in the stucco can be repaired yourself or by a qualified plaster contractor by repainting with elastomeric paint.

Brick, Block & Stone

Brick, concrete block and stone are used as sidings on veneer walls and are also built into masonry walls. Veneer walls are standard wood frame walls with a brick, block or stone facing for weather protection. The wood frame provides the structural support. Masonry walls, on the other hand, use the brick, block or stone as both the structural support and the weather protection.

Inspect your masonry chimney and any brick, block or stone walls twice each year. Look for chipped, cracked, loose, deteriorating and missing material. Any such problems should be repaired to keep water out of masonry material and from causing future damage.

You should also check the mortar joints for weak or crumbling mortar. Use an old screwdriver to test the mortar by scratching along the mortar joints. The mortar should be firm. If it crumbles easily, is cracked or has fallen out, have the mortar joints repaired or water will enter the joints and cause additional damage.

A white powdery substance that can form on the surface of masonry work is known as efflorescence. It is caused by moisture bringing salts to the surface. Efflorescence is common in new masonry work and can be washed off. If the condition persists, it may be a sign that water is penetrating the wall through cracks, faulty mortar joints or defective caulking or flashing around wall joints or openings. Have the problem investigated and repaired.

If you ever notice bulging sections or large cracks in either a veneer or masonry wall, have the condition checked by a professional contractor. It may indicate structural problems.

Aluminum, Steel & Vinyl Siding

These are the manufactured sidings. They are generally made to resemble beveled horizontal wood board siding although other styles are available. Aluminum and steel siding usually have baked enamel paint finishes. The coloring in vinyl siding is imbedded in the material. The siding can be smooth or can be embossed with a wood-grain texture to resemble painted wood boards.

These manufactured sidings are insect and water resistant. However, some maintenance is still required.

Aluminum and steel siding can show scratches and can dent if struck by a baseball or other object. Touch up scratches with paint. If dents are obvious, there are ways to remove them. Over time the color may fade and

need to be repainted. In many areas, local building codes require that aluminum and steel siding be grounded at each corner of the building.

Vinyl will not dent like aluminum. If hit, it flexes to absorb the shock and returns to its original shape. However, vinyl siding can crack. You should replace any cracked sections.

You should inspect all manufactured siding for loose or damaged sections and open seams and joints. Repair or replace the siding when necessary.

Cleaning

Cleaning your home's exterior surfaces regularly will improve your home's appearance and will help preserve your paint, stain or siding finish. Cleaning once or twice a year will remove light soil as well as grime and pollutants that can damage your siding.

Wash from the bottom up with a solution of soap and warm water. Washing from the bottom up prevents streaking. Pay particular attention to the areas around door handles and window catches where dirt and grease will be heaviest. Rinse with fresh water from top to bottom to prevent runs of dirty liquid on a newly cleaned surface. You can use a pressure washer or a garden hose and scrub brush for this job.

If you find mildew on your siding, apply household bleach directly to any affected areas and rinse with water.

Exterior Caulking

Caulking is used to seal joints, gaps and seams in exterior walls. Without caulking, cool air, water and insects could enter your home through these openings. All caulking compounds dry out over time. Check for cracked, loose or missing caulking as part of your spring and autumn maintenance inspections. Typically, your home should be re-caulked every five years or less. Caulking around some areas may deteriorate sooner. Repair deteriorated caulking as soon as it appears.

Where to Inspect

You will find caulking where different surfaces meet. These surfaces include the roof where one flashing meets another flashing, where flashing and a roof or dormer surface meet and where a chimney, flue, plumbing or electrical pipe, attic fan or skylight protrudes through the roof surface.

Caulking is found on exterior walls where siding and trim meet at corners, around window and door frames, between badly fitting pieces of siding, where pipes, framing members and other protrusions pass through siding, and where siding meets the foundation, patio, deck or any other different part of your home.

Applying Caulking

Caulking is one of the simplest jobs a home owner can perform. No special skills or expensive tools are required and it does not consume much time. However, you must prepare the area to be caulked properly. Begin by removing the old caulk. Then clean the area before applying the new caulk. Different caulks have different uses and are to be applied in different ways. Read the caulk manufacturer's instructions carefully before applying the new caulk.

Foundations

Your foundation supports your home and keeps it from shifting. You should inspect your foundation twice a year to ensure it lasts for the life of your home.

The type of foundation you have depends on your home's design and your particular soil conditions. In areas where flooding or weak soil is a problem, houses are often built on piers or pilings. In some areas, pressure-treated wood foundations have become popular. The most common foundation, however, is a concrete or masonry perimeter enclosing a crawl space, full cellar or basement.

Cracks

Begin your inspection by looking for cracks along the foundations outside wall. Heaving soil, settling soil and lateral pressure against the foundation put stress upon your foundation. These stresses can cause foundation cracks. Normal curing of concrete and mortar joints can also cause cracks. Most cracks are normal and are structurally insignificant. Cracks wider than 1/16 inch should be investigated, possibly with the assistance of an engineer or qualified inspector, to determine whether the cracks are a cause for concern.

Wet soil can contribute to the forces acting upon your foundation. Heavy wet soil can increase the lateral pressure against the foundation. Uneven soil moisture can cause uneven heaving or settling. It is important to maintain your gutters and downspouts and direct downspout flow away from the foundation as discussed on page 4-7.

Next, check the slope of the ground around your foundation. The ground should slope away from your home so rain water will flow away from, not toward the foundation. Back filled soil along the house can settle over time. This can create a depression that will collect water near the foundation. Correct any depressions by raising the grade with topsoil (not sand or gravel) so that the ground slopes two inches per horizontal foot for 8 to 10 feet from the foundation.

Settling along the foundation can also cause concrete patios and walkways to break and direct water towards your home. A contractor can add a new layer of concrete to reverse the slope.

Moisture

You should watch for condensation, basement leaks and crawl space moisture. These problems can cause wood structural members to decay.

Condensation

Condensation is caused when warm, moist air comes in contact with a colder surface such as a window, exposed pipe or bare concrete basement wall. It can look as if the window, pipe or wall is leaking. Condensation can be worse in new homes as water from concrete walls evaporate as part of the normal curing process. Proper ventilation can control condensation.

Basement Leaks

There are a variety of ways to repair basement leaks, depending on the reason for the leak and its seriousness. Most leaks, however, can be solved by redirecting surface water away from the home by re-grading around the foundation and directing downspout water away from the foundation. If this does not work, get several opinions and proposals from professional contractors so that you can make an informed decision on how to proceed.

Crawl Space Moisture

Soil under a crawl space can draw water into the space through capillary attraction. This moisture can cause beams, floor joist, subfloors and even roof sheathing to decay.

Inspect all crawl spaces with a flashlight. If it is necessary to go into the crawl space to view the entire area, wear a face mask. You can stir up insecticides and other chemicals that settled on the ground.

Look for a moisture barrier

All bare soil should be covered with a moisture barrier of 6-mil polyethylene plastic. The plastic should go up the foundation walls to a point higher than the outside grade line and be weighted down with bricks, gravel, soil or other non-organic material.

Look for standing water

There should never be standing water under your home. If there is, consult a professional contractor for drainage options.

Inspect the foundation vents

Foundation vents help control moisture in the crawl space. Make sure the vents are open and not blocked by soil, leaves or other debris. If the crawl space smells musty, you need more ventilation.

Insects

Insects are another threat you should watch for as part of your foundation maintenance. Insects can damage wood structural members and indicate moisture is present that could lead to wood decay.

If you live in an area where termites, carpenter ants or insect infestations are known to be a problem or you see signs of insect infestation, call a licensed pest control contractor. Controlling insects requires specialized training to know where to look, what to look for and what action to take. It is not a do-it-yourself task.

Garage Doors

You can prevent many garage door problems with regular maintenance. Periodically clean the tracks, hinges and rollers and lubricate them with penetrating oil or silicone spray. Lubricate the locks with graphite powder. The screws that fasten the hardware to the door will loosen over time as the door settles or as wood doors shrink as they age. Tighten the garage door screws every 12 months.

Inspect the springs regularly. Replace any springs that develop bulges or are unevenly spaced. Inspect the tracks for proper alignment, crimps in the track and other damage. If the door binds or drags, it is likely the tracks are poorly aligned or need lubrication. Keep wood doors sealed and painted, particularly along the bottom edge, to prevent swelling and moisture damage.

Garage Door Opener

An improperly adjusted garage door opener can cause a serious accident. Your openers have an automatic return switch so that the doors will reverse automatically if they meet an obstacle. Test your garage door openers by blocking the door with your hands while the door is closing. If the door does not reverse when it encounters your hands, adjust the automatic reverse adjustment screws.

How far the doors open and close are controlled by height adjustment nuts. If your doors do not open or close properly, you can reset the adjustment nuts.

If the drive unit works but the door won't open, the belt connecting the pulley with the motor may need adjusting.

See your owner's manual for more information on how to make these adjustments and other repairs.

Driveways, Walks & Steps

Concrete driveways, walks and steps usually have expansion joints to minimize cracking. However, cracking is a natural characteristic of concrete that cannot be eliminated. Normal cracks should not create serious problems.

Snow and ice can damage concrete driveways, walks and steps. Remove snow and ice promptly to protect your concrete. If you cannot remove a thin layer of ice, sprinkle sand or cat litter on the ice for traction. Do not use salt or chemicals to melt the ice. Salt and chemicals can damage your concrete and kill nearby grass, trees and shrubs.

Wood Decks

Cedar or redwood boards, treated wood and stained or painted wood are common materials for wood decks. Cedar and redwood are naturally weather resistant without paint, stains or chemical preservatives.

Cedar and redwood are more expensive than other decking materials but does not need to be painted or pressure treated. As the cedar weathers, it will turn a distinctive driftwood gray color. Redwood darkens to a natural hue as it weathers.

Your wood decking will expand and contract with the elements. This will cause nails to pull away from the boards and could cause some boards to warp. Reset any pulled nails and re-nail any warped boards with a finishing hammer. Do not use a regular hammer. The head of a regular carpenter's hammer will dent the wood around the nail. There should be gaps between the deck boards so that water can drain from the deck.

These gaps, however, can collect dirt, leaves and other debris. The obstructions can then soak up water and cause the wood to decay. Places where deck boards rest on joists underneath the deck are particularly prone to collecting obstructions. Your deck will last longer if you clean between the deck boards with a pressure washer once a year.

Interior Maintenance



Many materials are used inside your home to cover your ceilings, walls and floors. These materials should be cleaned and maintained regularly. In addition, you should inspect for structural problems. Although structural problems are rare, it is important to determine the cause and make repairs before the problem grows worse. This section discusses interior inspection and maintenance.

Walls

Your home has two types of walls, bearing walls that are part of your home's structural frame and non-bearing walls. Generally, you may alter non-bearing walls as you like without fear of structural damage. Bearing walls, however, must be altered carefully to avoid reducing their structural capacity. For safety, consult a professional contractor before altering any wall.

Walls in modern homes are usually made of gypsum wallboard. They should last as long as your home with little maintenance. Sometimes normal shrinking will cause minor cracks or cause nails to pop from the wallboard. The framing boards and the wallboard shrink away from the nail, leaving the nail sticking out beyond the surface of the wallboard. Popped nails do not alter the strength of the wall and should be left alone until you redecorate the room.

When redecorating, fill any cracks, repair any scuffs or dents, and reset and re-spackle any popped nails. Repaint or redecorate the wall surface.

Inspection: Although you see them every day, you should actually inspect your walls once a year. Look and feel along the walls for cracks and bowing, sagging or leaning walls.

As discussed above, minor, straight, generally parallel cracks are common. Cracks at angles to each other, jagged cracks and open cracks, however, require your attention. If cracking is extensive, additional cracks develop, cracks change in size from season to season or cracks grow longer or wider, you should call a professional inspector, engineer or contractor to inspect for structural problems.

Minor sagging or softening of the wall material may indicate a water leak that should be repaired behind or above the damaged area. Bowed, sagging or leaning walls may indicate structural problems that should be inspected by a professional inspector, engineer or contractor.

Inspect wall coverings for signs of fraying, tearing and pulling away from the wall. Repairing minor problems in time will preserve the look and the life of your wall coverings.

Maintenance

The proper way to maintain your walls is to keep them free of spots and fingerprints. Clean anything on your walls that might result in a permanent stain as soon as you notice it.

When your walls become dirty, spot clean just the dirty areas whenever you can get away with it. If spot cleaning is not enough, proceed with a full washing. Wash from the top of the wall down, wiping off runs of cleaning solution as you go, before the runs have a chance to cause streaks. Before washing any wall, however, wash a test area first to be sure that you will not damage the surface.

Ceilings

There are a wide variety of ceiling styles and covering materials. Your ceilings may be flat and level, detailed with coves, trays or other designs or pitched to follow the roof line (vaulted or cathedral ceilings). Wood beams may be exposed or all structural components may be covered by the ceiling materials.

The most common ceiling covering may be gypsum board, also known as sheet rock or plaster board. Other coverings include plaster, wood, tin, interlocking acoustical tiles and suspended ceilings. Whatever the style or materials, your ceilings should require little maintenance.

Inspection

Inspect your ceilings once a year when you inspect your walls. Look for cracks, sags and bows. Minor ceiling cracks and nail pops, like minor wall cracks and nail pops, are normal and can be covered when you redecorate the room. More substantial cracks require more attention as set out in the wall inspection discussion above. A sagging or bowed ceiling indicates the ceiling material may be pulling away from its structural supports and should be inspected by a professional.

The roof above rooms with exposed wood ceilings or beams should be inspected regularly as discussed at this link. Even small leaks can cause permanent water stains or wood damage. If you ever see signs of leaks in these rooms, have the problem repaired as soon as possible.

Maintenance

Clean cobwebs along your ceilings periodically with a broom or vacuum attachment. Other than that, your ceilings should require little attention.

You generally should not need to wash your ceilings. Even if a ceiling is dirty, the dirt will not be noticed if the ceiling is uniformly dirty. Mold on bathroom walls and cooking grease on kitchen ceilings can be cleaned with household cleaners.

You can repaint most ceilings to hide dirt, cover paint damage or redecorate the room. However ceilings are difficult to paint. Because ceilings receive less wear and tear than walls, they are generally repainted less frequently.

Floors

Floors can be covered by a variety of materials. Maintenance of the most common floor materials - carpet, wood, resilient flooring and tile - are discussed separately below.

Carpeting

You can extend the life of your carpets with proper care. The single most important thing you can do to maintain your carpets is frequent, thorough vacuuming. In addition, clean up spills immediately by blotting the spill. Never rub your carpets. A little ice water or an ice cube applied to a fresh spill will often loosen the stain enough to blot it up easily and reduce staining.

Use mats, runners or throw rugs to protect your carpets from dirt and excessive wear in high traffic areas. They are easy to clean and can be replaced when necessary. If deep cleaning is needed, you should hire a professional who uses the extraction method of deep cleaning or the rotary method followed by extraction. If you want to do the job yourself, extraction devices are available for rent at many retail stores.

Wood Floors

Modern wood floors are coated with a polyurethane coating to protect the wood. Do not sand or use commercial refinishers on the floor. Instead, have wood floors refinished by a flooring contractor. Although the job is simple, special tools are required. This is not a do-it-yourself job. You should be able to walk on the floor 24 hours after refinishing.

Under normal wear and tear, your floor should be able to go 5 years between refinishing. Normal maintenance of your wood floor should include regular vacuuming or dry mopping to remove surface dust and dirt. Water can be used to clean your wood floors but be careful not to flood the floor. Excess water can damage the wood. Protect the finish on the floors by attaching furniture rests to the bottom of your furniture legs.

Resilient Flooring

Resilient floors are a popular floor covering. The most common resilient floors are vinyl, polyurethane, linoleum and rubber. Resilient flooring comes in two forms, sheets and tiles. Sheets are popular in areas where the floor may get wet, such as kitchens, bathrooms, laundry rooms and entry ways, because it usually requires few if any seams. Although tiles have seams, they are easy to install.

Follow the manufacturer's care recommendations. Most resilient floors should be finished with Acrylic High-Gloss Floor Finish. No-wax, linoleum and bathroom floors are discussed below. Before applying finish for the first time, seal the floor with a penetrating sealer (not a surface sealer). You should seal the floor after stripping it for the first time if you do not know whether it has been sealed before. Strip and refinish the floor as needed to keep the floor looking like new.

You do not need to finish no-wax floors with acrylic finish if you sweep, vacuum, damp mop and wash the floor regularly. However, dirt and grime will wear down the floor's finish. If you know you will have problems keeping the floor clean at all times, you may want to finish the no-wax floor. A sealer is not necessary on no-wax floors. Because bathroom floors are exposed to a lot of moisture, it is difficult to maintain a finished floor. Just seal the floor and keep it clean.

True linoleum is usually found in older homes on floors and countertops. It should be sealed with a wood sealer and finished with wax, not acrylic finish.

Tile Floors (Walls & Countertops)

A silicone grout seal is applied to tile surfaces to protect the grout between the tiles from staining. Grout seal should be re-applied every year to renew the protection. Simply sponge grout seal over the entire surface, wipe off the excess and allow drying for two hours. Grout seal can be purchased at any tile supply house.

Clean ceramic tile by wiping with a damp cloth or an occasional wet mop. If necessary, a more thorough cleaning with detergent or ceramic tile cleaner will remove grime. Staining agents should be mopped up promptly. Under normal conditions, some staining is likely to occur. Often stains can be bleached out with household bleach.

Windows

Windows come in a variety of shapes, sizes, designs and materials. Double hung, casement, awning and sliding windows open by different methods. Fixed windows let in light but can not be opened. Skylights can be fixed or they can be opened manually or by an electric motor. Windows can be made of wood, vinyl, steel, aluminum, vinyl-clad wood, aluminum-clad wood or vinyl-clad aluminum.

A typical window contains glass, framing around the glass called the sash, framing around the window opening and molding around the frame. Windows may be a single pane of glass or may contain two or more layers of glass with air space between the layers for insulation. A coating on “low-E” glass reflects radiant heat back into your home during the winter and reflects heat from the sun’s rays away from your home during the summer.

Windows Inspection

Inspect your windows each year. Begin by opening and closing the windows. If the windows stick, it may be that moisture is swelling wood windows. Allow the wood to dry during the summer, inspect for decay and re-seal. Sticking windows can also be caused by excessive layers of paint between the frame and sash. Use a putty knife or a “window zipper” to cut through the paint. Cleaning the window’s track with a brush and lubricating the inside of the track with petroleum jelly or silicone spray can also solve window sticking problems.

Wood windows should be inspected inside and out for paint and decay problems in the same manner as wood siding and wood trim. See the discussion at this link.

Maintenance

Clean the tracks on windows that open with a brush or vacuum attachment. Lubricate the inside of the track with petroleum jelly or silicone spray, removing any excess. Casement windows that operated by a crank and gear mechanism should be maintained by occasionally cleaning and lubricating the window mechanism.

Look for broken glass panes, bent sashes, loose, broken or missing hardware and torn or damaged window screens. Inspect locks and latch handles for proper operation and secure fit. Check seals, caulking and weather stripping to ensure cool outside air cannot enter your home from around a window. Make any necessary repairs.

A word on washing your windows: Few things affect the feeling of a room more than the quality of light coming through the windows. The easiest, fastest and most effective way to clean windows is with a squeegee and clear ammonia or dishwashing detergent and water. Use a professional quality window squeegee with replaceable blades. Use a squeegee extension pole to reach windows that are beyond reach. A squeegee scrub sleeve is the most efficient way to scrub the windows before using the squeegee.

Finally, check to make sure all opening windows move freely. You want to be certain that your family can exit through windows if necessary.

Cabinets and Countertops

Use a damp cloth to clean your cabinets or a mild household cleaner, never use harsh abrasive cleaners. Keep cabinet doors and drawers closed when not in use to protect the mounting hardware.

Wipe your countertops clean with a damp cloth. If necessary, a more thorough cleaning with detergent or household cleaner will remove grime. As with your tile floors, silicon grout seal is applied to protect tile countertops. If you have tile countertops or back splashes, re-apply grout seal once each year (see the tile floor discussion at this link).

Staining agents should be cleaned up promptly. Protect your countertops from hot pots, pans, baking dishes and irons with pot rests. Never cut anything directly on the countertop as the knife may dent or nick the surface.

Heating & Cooling



Your home's heating and cooling system should give you many years of service with proper maintenance. Preventive maintenance will lower your energy costs, prevent costly repairs and prolong the life of your system. Regular maintenance will ensure that your system is ready to heat and cool your home when needed.

There are a variety of systems for heating, ventilating and cooling your home. This chapter discusses the most common systems and their individual components. Review all sections that apply to your home. For specific information on how to maintain the system in your home, see the manufacturers' appliance manuals for the equipment in your home.

If you are missing one or more original appliance manuals, contact the appliance manufacturer and ask for a replacement manual. Most manufacturers should replace missing manuals.

The suggestions listed below are a reminder that your home's system must be maintained regularly. Always follow the manufacturer's maintenance specifications .

Professional Maintenance

Most heating and cooling systems should be serviced once a year by a professional heating or cooling contractor. The professional contractor has the tools, instruments and training necessary to maintain your system for dependable, trouble-free operation. The contractor should inspect your system, complete necessary maintenance tasks and adjust the entire system for optimal performance.

The contractor that installed your system or your local oil or gas distributor should be qualified to maintain your system. You also can look for heating and cooling contractors in the yellow pages of your local telephone book. You may want to consider purchasing a service contract for your system. Once you find a good contractor, reward the contractor's service by your continued patronage.

Thermostats

Thermostats signal a demand for heat at preset minimum temperatures. It is this signal that controls the rest of the heating system. When the air reaches the desired temperature, the thermostat turns the heating system off. Thermostats control cooling systems in the same manner at preset maximum temperatures.

Clock thermostats and multiple-setback thermostats can be adjusted to maintain different temperatures at different times of the day to conserve energy. You can set the units for lower temperatures during the work day if the house is empty and at night when you sleep.

Maintenance

Thermostats should be cleaned and, if necessary, adjusted once a year. Dust between contact points and improper alignment can affect a thermostat's operation. Your heating and cooling contractor should inspect all thermostats during the annual service call. If you prefer, you can maintain the thermostats yourself. This annual maintenance should include the following:

Dust

Remove the thermostat's cover and dust the inside surfaces and any metal coil with a soft brush.

Contact Points

Clean metal contact points by working a piece of heavy bond paper or thin card stock between the contact points and blowing the contacts clean.

Liquid Mercury Contacts

The previous step is not necessary if the unit has a liquid mercury contact enclosed in an airtight glass tube instead of contact points.

Switch Contacts

Clean any metal switch contacts along the top or edges of the unit with a cotton swab moistened with alcohol.

Alignment

Check alignment with a level and adjust as necessary.

Calibration

Check temperature readings for accuracy and adjust as necessary.

Forced Air Heat

Forced air heating systems warm many modern homes. First a furnace or electric heat pump heats cool air. A blower then forces the heated air throughout your home. The heated air travels through ducts and registers into your home's living areas. Next cool air returns to the furnace by a separate register and duct known as the cold air return. Finally, the furnace heats the returning cool air and the cycle begins again.

Your forced air heating system requires comprehensive annual maintenance by a professional heating contractor at the beginning of each heating season. In addition, you should follow the simple maintenance suggestions discussed below to keep your system operating at peak performance.

Air Filters

Dirty air filters restrict airflow and reduce the heating system's efficiency. Inspect your air filters once a month when the system is in use for heating or cooling. Clean or replace dirty air filters as necessary.

The first step in inspecting your air filters is to locate and remove the metal panel covering the filter or filters. The cover panel should be located near the heating system's blower. Next, slide out the filters. Clean or replace the filters with new filters of the same size. Slide the new filters into position according to the air-flow directions on the filter. Finally, replace the cover panel. Regular inspection, cleaning and replacement of your furnace filters will reduce your heating bills and prolong the life of your heating unit.

Balancing the Heat

If some rooms seem too hot or too cold, you can "balance" the heat distribution throughout your home. Open and close supply registers and duct dampers as necessary to control the flow of heated air.

If your system has duct dampers, they should be found where one duct branches from another. The damper handle shows the direction of the damper vane. A damper is fully open when the handle is parallel to the duct. It is fully closed when the handle is perpendicular to the duct.

Increase air flow to cold rooms and reduce air flow to overheated rooms. If you have problems adjusting the heat to your satisfaction, consult your professional heating contractor.

Professional Maintenance

Call your heating contractor early before the start of the heating season to schedule a service call. This way you will beat the winter rush.

The contractor should do the following:

1. Thermostats - Clean and adjust all thermostats. [Check this link.](#)
2. Blower Blades - Clean the furnace's blower blades.
3. Fan belts - Check fan belt tension and adjust as necessary. Worn or faulty fan belts should be replaced.
4. Motors - The blower motor and any other motors should be oiled. Do not oil permanently lubricated motors.
5. Humidifier - Examine humidifier for water leaks and flush mineral deposits from unit.
6. Heat Source - Inspect and service the heat source as discussed at [this link.](#)
7. Ducts - Examine supply ducts for gaps or leaks and repair as necessary.

Home Owner Maintenance

Between maintenance calls, you should do the following once each month when your forced air system is in use for heating or cooling:

1. Filters - Inspect air filters and clean or replace as necessary.
2. Registers - Reduce dust in your home by vacuuming heat registers and the cold air return as part of your regular cleaning. Remove any objects or debris that may have fallen through the registers.
3. Obstructions - Remove any drapes, furniture or other objects blocking registers, interrupting airflow and lowering your system's efficiency.
4. Listen - Listen to your furnace and the rest of your system. If you hear unusual noises, follow the appliance manual's directions or consult with your professional heating contractor.
5. Ducts - Examine exposed supply ducts for gaps or leaks allowing heated air to escape. Look for gaps and run your hand along exposed supply ducts with the blower running to feel for escaping air. Seal any leaks with duct tape.

Gravity Air Heat

A gravity air system is similar to a forced air system. Both systems use air to transfer heat from the furnace to the living areas. A gravity air system does not have a blower. Instead, the natural convection created by warm air rising circulates air throughout the system. Gravity air system maintenance is similar to the forced air system maintenance discussed above. Gravity air systems, of course, do not have blowers to maintain. In addition, there are no filters to obstruct the slower moving air. Like forced air systems, gravity air systems require annual maintenance by a professional heating contractor.

Hot Water Heat

Hot water heat is a common heating system. First, oil, gas, electricity or another fuel heats water in a boiler. Next, the heated water travels through pipes to radiators, convectors or radiant piping concealed in floors, walls or ceilings. Heat from the water then radiates throughout the living space. After giving up some of its heat, cooler water returns to the boiler to be heated again.

Water can circulate through the system by gravity (lighter, heated water rises to displace heavier, cooler water) or by circulating pumps. Distribution piping can be laid out in a variety of arrangements. Some combination of thermostats, aquastat controls (on/off control based on preset water temperatures), relays and manual controls will control the system. Some systems divide the home into separate heating areas or "zones." Your heating contractor or gas or oil supply representative can identify and explain the particular features of your hot water system.

Although the theory is simple, you have a complicated system. Your system must be inspected and serviced by a professional heating contractor annually. Careful operation and periodic home owner maintenance are also required for safe, trouble free operation.

If you have any questions or concerns regarding the operation of your hot water or steam heating system, call your professional heating contractor. Call immediately. Do not wait for the system to fail before consulting an expert.

Radiators & Convector

Radiators and convectors are the most common radiating devices. Radiators are large cast iron tubes. Convectors are smaller copper or steel tubes surrounded by metal fins housed in gridded cabinets or baseboard units. The fins increase the convectors heated area.

Dirt, dust and obstructions interfere with the heat transfer from the radiators or convectors to the room air. Clean the radiators or convectors with a vacuum brush attachment regularly. If a radiator cannot be cleaned with a vacuum brush attachment, spread damp newspapers under the radiator and clean with a radiator brush. Remove any drapes, furnishings or other objects obstructing air flow around your radiators or convectors. Do not place anything on top or in front of your radiators or convectors.

Air trapped inside a radiator or convector, can interfere with heat distribution. Some radiators and convectors have automatic air valves that bleed air from the units. If yours do not, they should be bled manually at the beginning of the heating season and after adding or removing water from the system. If a radiator or convector will not heat properly, bleeding the unit may solve the problem.

Balancing the Heat

You can “balance the heat” distribution when some rooms feel too hot or too cold. First, turn the system on and allow room temperatures to stabilize. Next, open or close the valve leading to the radiator or convector to be adjusted. Then wait for room temperatures to stabilize before making another adjustment. You may need patience, it can take several days of adjustments to balance the system.

Freezing

Do not allow the water in your distribution pipes to freeze. Mechanical problems, extended power failure, fuel oil delivery problems, gas supply interruptions and other causes can shut down your system. If the system is to be off for several days, contact a heating professional to add anti-freeze to or drain water from the system. Leave the system running at a low temperature when you leave your home during the heating season.

Controls

If your system has a constant running pump, turn the pump on at the beginning of the heating season. Turn the pump off after the heating system ends. This task does not apply to gravity systems or circulation pumps controlled by aqua-static or relay controls.

Your system heats water under pressure. An automatic pressure relief valve guards against excessive pressure. This safety control device will open, if needed, to release pressure and prevent serious damage.

Professional Maintenance

Call a professional heating contractor or your local oil or gas distributor to schedule an annual inspection and service before the start of the heating season. The contractor should do the following:

1. Thermostats - Clean and adjust all thermostats at this link.
2. Controls - Inspect all aquastats, relays and other controls.
3. Temperature Pressure Relief Valve - Check the temperature pressure relief valve by lifting the valve lever and allowing a small amount of water to flow into a bucket. Replace if no water flows from the valve.
4. Water Temperature - Inspect the water temperature gauge and adjust water temperature as necessary.
5. Water Pressure - Inspect the pressure temperature gauge, showing boiler water level, and make any necessary adjustments. Some systems have a pressure reducing valve that maintains the proper water level automatically.
6. Pumps & Motors - Oil all pumps and motors unless they have permanently lubricated bearings. Un-lubricated pumps are expensive to replace.
7. Radiators & Convectors - Bleed radiators and convectors if there is no automatic air valve.
8. Pipes - Inspect pipes for rust and leaks.
9. Heat Source - Inspect and service the heat source as discussed at this link.

Home Owner Maintenance

Between maintenance calls, you should do the following once each month during the heating season:

1. Radiators & Convectors - Clean radiators or convectors with a vacuum brush attachment.
2. Obstructions - Remove any drapes, furniture or other objects blocking radiators or convectors. These obstructions interrupt airflow and lower your system's efficiency.
3. Temperature Pressure Relief Valve - Examine the temperature pressure relief valve. Call your contractor if you see signs of leaking or discharged water.
4. Pipes - Check exposed pipes for rust and leaks. If you discover a problem, contact a heating professional immediately, before the problem worsens and extensive repairs become necessary.
5. Listen - Listen to your heating system. If you hear unusual noises, review the appliance manual for the boiler and any separate manuals for the pumps and motors. Follow the manufacturer's directions or call your heating contractor.

Steam Heat

Steam heat systems are similar to hot water systems. Boilers, pipes and radiators or convectors generate, distribute and radiate heat. The boiler heats cool water until it turns to steam. The steam then rises through the pipes to radiators or convectors. After the steam gives up its heat, it condenses back to water and runs back to the boiler to be heated again.

You should maintain your steam heat system similar to the hot water system discussed above. Steam systems must be serviced by a professional heating contractor. There are some differences between the two systems. Steam heat systems do not have pumps and pump controls to maintain. The steam boiler's water level should be monitored periodically. In addition the low-water cutoff should be flushed once a month to prevent buildup of sediment. Ask your contractor how to maintain your system throughout the heating season.

Gas Burner

Gas burners are common in forced air, hot water and steam systems. The burners can be fueled by natural gas, manufactured gas or bottled liquid propane gas. Gas burners are generally reliable and require little maintenance.

In a gas system, an automatic gas valve opens when the thermostat calls for heat. Gas flows into a manifold and through venturi tubes where the gas mixes with air. A pilot light then ignites the air-gas mixture when it emerges from burner ports. The burning gas produces heat.

A thermocouple next to the pilot light closes the gas valve if the pilot light goes out. This prevents unburned natural gas from accumulating and creating a fire hazard. If the thermocouple is faulty, the pilot will not light.

Pilot lights can be electric or gas pilots. If you have problems with an electric pilot, call your professional heating contractor. You can clean and re-light a gas pilot by following the instructions printed on the front of the boiler or furnace.

Some home owners turn off their gas pilot lights during the non-heating months. This may save energy but can create other problems. Keeps the pilot burning all year to reduce condensation within the system and prevent corrosion.

Professional Maintenance

Your heating contractor should do the following during the service call:

1. Pilot - Clean the pilot orifice and adjust the pilot flame as needed.
2. Burners - Clean the burners and adjust as necessary.
3. Heat Exchanger - Clean heat exchanger surfaces. Inspect to ensure there is no deterioration allowing poisonous exhaust gases to mix with indoor air.
4. Flue - Clean flue passages to remove soot buildup and inspect for exhaust gas leaks.

Oil Burner

Two types of oil burners usually heat air or water. The most common is the high pressure or gun-type burner. The other is a vaporizing or pot-type burner.

When the thermostat calls for heat, a high pressure or gun-type oil burner pumps oil through a nozzle, producing an oil mist. A blower mixes the oil mist with air and propels the air-oil mixture into a combustion chamber. A high-voltage spark created by two electrodes then ignites the air-oil mixture.

In a vaporizing or pot-type burner, an oil control valve opens to allow oil to pool in a pot. A blower or natural draft adds the air needed to support combustion. An electric spark then ignites the oil. The heat of the burning oil causes the oil in the pool to vaporize and mix with the air. The vaporized oil-air mixture then ignites and the cycle continues. The vaporizing burner requires a higher grade of oil that vaporizes easily for efficient operation.

Controls

If the oil does not ignite in either type of burner, a safety control cuts off the flow of oil to the burner. This control may be a flame sensor in the burner or a heat sensor on a stack control attached to the flue. Without this safety device, the boiler or furnace could flood with flammable oil and put your home in danger.

A proper draft over the fire box is important for efficient operation of either oil burner. Most oil burners have a draft regulator mounted in the exhaust stack near the boiler or furnace. The regulator contains a small damper that opens and closes automatically to maintain the proper draft.

Professional Maintenance

All oil burners require an annual inspection by a professional heating contractor. A burner that is out of adjustment can waste up to 50% of your fuel dollars.

Your heating contractor should do the following:

1. Burners - Clean the burners and adjust as necessary.
2. Heat Exchanger - Clean heat exchanger surfaces. Inspect to ensure there is no deterioration allowing poisonous exhaust gases to mix with indoor air.
3. Flue - Clean flue passages and inspect for exhaust gas leaks.
4. Efficiency Testing - Test burner efficiency and adjust as necessary.

Electric Elements

Electric resistance heating can be the heat source for your boiler or furnace. Electrical resistance coils are immersed directly into the furnace's air flow or the boiler's water. It is a simple system. When a thermostat calls for heat, the resistance coils become warm and transmit their heat directly to the air or water. When the thermostat signals that the demand for heat has been satisfied, the coils are turned off.

Have a qualified professional maintain your electric boiler or furnace once a year. Likewise, if you have any problems with the electric heating elements, call a qualified professional.

Heat Pump

Heat pumps are another heat source for forced air heating systems. Electric heat pumps are more energy efficient than other electrical heating systems because they use electricity to move heat, instead of producing heat.

The most common heat pumps are air-to-air systems. They extract heat from the outside air and transfer it to the inside air. Other systems include solar-assisted, water-source and ground-source heat pumps. The principles for air-to-air systems discussed below also apply to other types of heat pumps.

It may seem hard to believe that heat from outside air can heat your home during freezing weather. As long as the air temperature is greater than absolute zero, -460 degrees F., there is some heat in the air. At 32 degrees F., air possesses 88% of the heat that it has at 100 degrees F.

Operation

Heat pumps move heat by moving a refrigerant with a boiling point around -20 degrees F., such as Freon, between indoor and outdoor coils or heat exchangers. The cold refrigerant, like any fluid, absorbs heat when the outside air heats it to a boil.

A compressor then compresses the vaporized refrigerant and raises its temperature to over 100 degrees F. The heated refrigerant passes through a pipe to the inside heat exchanger, transfers its heat to the inside air and condenses to a warm liquid.

The warm liquid then, passes through an expansion valve, reducing the refrigerant's pressure, expanding its volume and lowering its temperature (the reverse of compression). The cold refrigerant is ready to absorb heat from the outside air again and repeat the cycle.

The air at your registers may seem cool during the heating cycle. This is because a heat pump does not deliver sudden bursts of hot air like conventional furnaces. Instead, it delivers a more constant flow of 85 to 90 degrees F. air at a higher velocity. The air feels cool because it is less than your body temperature. The air is sufficiently warm to keep you comfortable.

Air Conditioning

Air conditioning is another advantage of heat pumps. A reversing valve reverses the refrigerant's flow for cooling so that the system extracts heat from the inside and discharges it outside.

Supplemental Heating

Supplemental electric heating elements will help heat your home when cold outside air reduces the heat pump's heating capacity. Raising the thermostat setting by more than 2 degrees F. increments may also turn on the supplementary heating and increase your energy usage. For maximum efficiency, set the thermostat and leave it at that setting day and night.

Outdoor Unit

It is normal for ice to build up on the outdoor coil, or heat exchanger, during winter heating. The heat pump defrosts the ice automatically to maintain efficient operation. Steam or fog may rise from the outdoor unit during the defrost cycle.

Do not allow snow, grass, clippings, vines, shrubs or other items to accumulate on or around the outdoor unit. Do not stack or store items on or around the unit. Maintain a minimum 12 inch clearance between the outdoor unit and snow banks and other obstructions. It is important to allow air to flow to the unit unrestricted.

Make sure that no one steps on the copper tubing between the indoor and outdoor units. Do not place or hang items on the tubing either. The heat pump may malfunction if kinks or dents in the tubing causes refrigerant to leak or restricts refrigerant flow. Repairing or replacing the copper tubing can be expensive.

Professional Maintenance

Once a year, call a professional heating and cooling contractor to do the following:

1. Blower - Inspect, clean and oil the indoor blower motor and blower wheel. Permanently lubricated motors should not be oiled.
2. Coils. Inspect and clean indoor and outdoor coils.
3. Drains - Inspect and clean and unplug the indoor coil's primary and auxiliary drain pans and drain lines.
4. Wiring - Look for loose electrical connections, discolored contacts and terminals and bare or frayed wiring.
5. Performance - Check the system's performance and adjust as necessary.

Home Owner Maintenance

Between maintenance calls, you should do the following:

1. Filters - As discussed in the forced air section, filters must be cleaned once a month when the system is in use. For a heat pump system, that means cleaning the indoor unit's filter (there is no filter in the outdoor unit) once a month, 12 months a year.
2. Indoor Coil - Periodically clean the indoor coil or heat exchanger with a vacuum cleaner's soft brush attachment. If this is insufficient to clean the coil, call your heating and cooling contractor.
3. Outdoor Coil - Clean around the outdoor coil unit. Remove any leaves, grass clippings or other debris from around the unit. Clean the outdoor coil or heat exchanger using a soft brush or the vacuum attachment discussed above. If the dirt is deeper in the coil than you can reach, call your heating and cooling contractor. Do not use a garden hose to clean the outdoor coil.
4. Listen - Listen to the outside unit and the rest of your system. If you hear unusual noises, follow the appliance manual's directions or consult with your professional heating contractor.
5. Winter Care - Keep snow away from the coil surface. Clear the snow with a broom or soft brush.

Electric Baseboard Heat

Electric baseboard heat is easy to control, requires little or no maintenance and provides clean, quiet, comfortable, draft-free heat. Unless you have a problem, the heating units require no professional maintenance.

Electric baseboard systems convert electricity to heat by forcing large amounts of electricity through a thin, highly resistant wire, causing the wire to become warm. The wire, or heating element, runs through a ceramic-lined metal tube surrounded by metal fins. A natural draft draws air through openings at the bottom of the baseboard unit's exterior housing. The air flows over the finned tube, picks up heat and rises through openings at the top of the housing to heat the room.

An alternate electric baseboard heating system uses fluid in a sealed tube. The heating element heats the fluid, which heats the tube and fins, which heats the passing air. The fluid retains heat and continues to warm passing air for a time after the thermostat turns off power to the heating element.

Controls

Thermostats control the flow of electricity to the baseboard units. Each unit has its own thermostat built into the unit's housing or mounted on a wall. The individual thermostats allow rooms to be heated as needed. This "zone" heating is more efficient than heating rooms that are not being used.

Most electric baseboard units have a temperature cutoff control. This safety device prevents the heating element from burning out when obstructions block air flow to the unit.

Home Owner Maintenance

Electric baseboard heaters require little maintenance. However, you should do the following once each month when your baseboard heaters are in use for heating:

1. Dust - For efficient heat transfer, remove the baseboard unit's cover and dust the inside surfaces, the heating element and the radiator fins with a soft brush.
2. Obstructions- Remove any drapes, furniture or other objects blocking baseboard units. An obstruction can interfere with the efficient flow of heated air and heat from the units can damage the obstructing item.
3. Problems - Electric baseboard heaters are very reliable. If you ever have a problem with a baseboard unit, call a professional electrician.

Electric Ceiling Heat

Electric ceiling heat is a true maintenance free heating system. Only the thermostats controlling the heat require maintenance.

Your ceiling system converts electricity to heat by forcing large amounts of electricity through thin, highly resistant wires embedded in the ceiling. The wire becomes warm and radiates its heat to the room below.

Thermostats control the flow of electricity to the ceiling units. Each unit has its own thermostat mounted on a wall. The individual thermostats allow rooms to be heated as needed. This "zone" heating is more efficient than heating rooms that are not being used.

Do not drive nails, drill holes or screw hangers through the ceiling. This can sever the thin wires and damage your system. If you ever have a problem with a ceiling unit, call a professional electrician.

Air-Conditioning

Central air-conditioning systems commonly use a forced air heating system's duct work.

The furnace's blower forces cool air through ducts and vents into your home. If you do not have a forced air heating system, a separate duct system can carry the cooled air.

Cooling takes place when a cold liquid (-20 degrees F. boiling point), such as Freon, passes through an evaporator coil. The refrigerant absorbs heat from the inside air and begins to boil. An electric compressor pumps the vaporized refrigerant under pressure to a condenser coil in an outside unit. A fan cools the refrigerant in the condenser. The refrigerant passes through an expansion device. The rapidly expanding refrigerant then cools to form a cold liquid. The now cold refrigerant returns to the evaporator coil to repeat the cycle.

The cold evaporator coil will collect condensing moisture from the circulating air. A pan collects water dripping from the evaporator. The water then drains through a primary drain and possibly a second overflow drain.

Balancing

As with heating, you can “balance” the distribution of air-conditioned air throughout your home. Adjust supply registers and duct dampers as necessary. Because hot air rises and cold air falls, you may want to increase the flow to upstairs rooms and decrease the flow to downstairs rooms. If the ducts also distribute heated air, remember to readjust the registers and duct dampers before the heating season.

Professional Maintenance

Energy costs for most air-conditioning systems can be high. For that reason, it is important to maintain your system properly. Ask your professional heating and cooling contractor to inspect your air-conditioning system during the annual service call. The contractor should:

1. Refrigeration System. Inspect and service as necessary.
2. Coils. Inspect and clean condenser and evaporator coils.
3. Drains. Inspect and clean the evaporator coil’s primary and overflow drain pan and drain lines. Unplug if necessary.
4. Wiring. Inspect wiring for loose electrical connections, discolored contacts and terminals and bare or frayed wiring.
5. Motors. Oil all motors unless they have permanently lubricated bearings.
6. Performance. Check the system’s performance and adjust as necessary.

Home Owner Maintenance

Between maintenance calls, you should complete the maintenance tasks listed below once each month, or as necessary, during the cooling season.

1. Filters. As discussed in the forced air section above, air filters must be cleaned once a month when the system is in use.
2. Coils. Clean the condenser and evaporator coils with a vacuum cleaner’s soft brush attachment. If this is insufficient to clean the coil, call your heating and cooling contractor.
3. Listen. Listen to the outside unit and the rest of your system. If you hear unusual noises, follow the appliance manual’s directions or consult with your professional heating and cooling contractor.

Appliances



This section discusses your water heater, garbage disposal, automatic dishwasher, oven, cooktop and smoke detector. Refrigerators, clothes washers and clothes dryers are also discussed (your heating system and garage door openers are discussed in previous sections).

Electric and gas appliances are accompanied by instruction booklets and other papers. Read all instruction literature carefully, remove, fill out and mail any postcards necessary to record warranties and perform all recommended maintenance.

If an electric appliance fails to operate, be sure that it is plugged in before you call a repair service. Be sure the circuit breaker for that appliance is on. If a gas appliance fails to work, check to see that the pilot light is lit. If you suspect a gas leak, turn off the main gas shutoff valve near the meter and call the gas company immediately.

Many appliances such as refrigerators, washing machines, dryers, dishwashers, etc., have motors that require periodic servicing. Consult the manuals that came with the appliances for information about their care.

Water Heater

Most homes have domestic hot water that is heated by electric, gas or oil water heaters. As a hot water faucet is opened, heated water is drawn from the top of the water heater's tank. The heated water is replaced by cold water that flows into the bottom of the tank. When the water temperature drops below a pre-set minimum, a thermostat activates electric heating elements or a gas or oil burner.

A temperature-pressure relief valve guards against excessive temperatures and pressures. This safety valve should be located near the top of the tank. A discharge pipe should be attached to the relief valve and run down the side of the tank to just above the floor. This discharge pipe prevents burns and other damage from discharged water. There must be no valves, caps or other obstructions preventing discharged water from draining rapidly.

If the temperature-pressure relief valve ever discharges steam or boiling water, shut off the water heater and call a plumber immediately.

Sediment can accumulate at the bottom of your water heater's tank. This reduces the unit's efficiency and can cause serious damage. Unusual noises from the tank such as "whistling and sizzling" or "rumbling and cracking" can be a sign of sediment buildup. A drain valve near the bottom of the water heater can be used to prevent sediment accumulation. Once a month, place a bucket under the valve and drain water and sediment from the bottom of the tank (5 gallons or so) until the water runs clear.

You should also inspect your water heater once every 6 months. During the inspection, check to see whether there are any signs that water has leaked or been discharged from the temperature-pressure relief valve. If so, call a plumber immediately. The relief valve may be faulty or there may be a problem with the water heater.

Test the relief valve by lifting or pressing down on its handle. Water should flow through the valve and down the discharge pipe. If water does not flow through the valve or if water continues to drip from the valve after the handle is released, call a plumber immediately to replace the defective valve.

Inspect the cold water supply pipe, the hot water outlet pipe, the water heater's metal housing and along the unit's base for rust, corrosion and signs of leaks. If you find a moist area, wipe it with a towel to determine whether the moisture is from a leak or from condensation. Repair all leaks or have the tank replaced if necessary.

If you have a gas or oil-fired water heater, you should have the unit professionally serviced at the same time your heating system is serviced. The service person should inspect and test the temperature and pressure relief valve, drain sediment from the tank, inspect the flue assembly and clean and adjust the burner ports.

Garbage Disposal

Your garbage disposal's instruction booklet gives precise directions for the disposal's operation. Be careful not to clog disposal drains with grease. You should be as careful of grease in your disposal as you are with any other drain.

Clean your garbage disposal by grinding ice cubes in the disposal regularly. Then "flush" your garbage disposal with hot water and baking soda once a month to prevent residual grease and soap from fouling your garbage disposal or clogging its drain.

Always run cold water when the disposal is on. Should the disposal drain become clogged, do not put chemicals down the disposal. If your disposal becomes overloaded with a substance it cannot grind, consult your instruction book.

Twice a year, tighten the drain connections and fasteners and look for signs of water leaks. See the manufacturer's instruction booklet for more information.

Automatic Dishwasher

Clean your dishwasher control panel with a lightly dampened cloth. Dry thoroughly. Do not use abrasives or sharp objects on the panel. Clean the outside with a good appliance polish wax. Scouring pads and harsh and gritty cleaners can damage the outside cabinet.

Clean the strainer and the spray arm once every three months. Other than that, the inside of the dishwasher should never need cleaning.

Inspect for water leaks every six months. First, complete a load of dishes in the dishwasher. Then, look along the front of the dishwasher for leaking water. Next, take off the front panel along the bottom of the unit and look underneath for signs of leaks. Look for water, water spots and signs of water damage. Have any leaks repaired immediately.

Oven

Your oven's appliance manual sets out safety precautions, operation instructions and oven care suggestions. Do not use scouring pads or abrasive cleaners on the control dial area, front door or trim of your oven.

You can test your oven's thermostat by placing an accurate oven thermometer in the center of a 350 degree oven. After 20 minutes, check the reading. If it's more than 100 degrees too high or too low, replace the control. If the difference is less than 100 degrees, pull the oven control knob off and locate the calibration screw. Tighten or loosen the screw. Keep testing until the temperature is correct.

Cooktop

Review your cooktop's appliance booklet for safety precautions, operation instructions, care and maintenance suggestions and troubleshooting information. Follow the manufacturer's recommended cooking procedures.

Never let the burners get too dirty. If you have a spill over, let the burner cool, then clean immediately. If stains and cooking soil are allowed to burn onto the burner, they become more difficult to remove.

Range Fan

A range fan near your cooktop vents cooking fumes. This fan contains a filter for trapping grease. This filter should be removed and cleaned periodically. You can clean this metal filter by hand with dishwashing detergent and water or place it in the dishwasher. Clean the fan blades and the fan's housing twice a year.

Smoke Detector

A smoke detector may be the only warning that saves you and your household from a fire while you sleep. Test your detector once each month by pressing the test button. The detector should sound its alarm. Pick a day, such as payday or the first day of the month, and test all smoke detectors. When you adjust your clocks in the spring and fall, change the batteries in each smoke detector.

Dust can interfere with the smoke detector's sensor. Use a vacuum attachment to clean around your smoke detectors and their sensor's when you change batteries. By maintaining your smoke detectors, you may save the life of someone you love.

Refrigerator

Refrigerators have a drain in their floor. Water from melting frost flows out this drain, into a pan and evaporates. Food particles can clog the drain and cause odors. Clean the drain regularly by removing its stopper and using a pipe cleaner or similar device to push any accumulations through to the drain pan below. Force a cleaning solution of detergent and water through the drain. Empty, wash and replace the pan. You should also vacuum the condenser coils along the back or bottom of the refrigerator.

The door gasket, if washed often with soapy water, should last as long as the refrigerator.

If you suspect the gasket is no longer sealing well, test it by holding a dollar bill so it's caught in the closed door. You should feel resistance when you pull the bill out. Repeat the test in several places. A gasket that does not pass the test or that is obviously cracked or torn should be replaced.

Temperature settings for refrigerator and freezer compartments are given arbitrary numbers by manufacturers (for example, 1 through 9, warmest to coldest). Generally, 37 degrees Fahrenheit is ideal for the refrigerator compartment and 0 degrees Fahrenheit for the freezer. If you suspect a problem, test the temperatures with a refrigerator or outdoor thermometer.

Clothes Washer

If you have not done so already, insert your clothes washer instruction booklet in Part 6 of this Home Owner's Manual. Clean the water inlet filters and inspect hoses for leaks twice a year. Replace hoses if necessary.

If your washer ever fails to work, first check its power supply. Be sure the cord is plugged in and not defective. Next check the circuit breaker. Also, be sure the faucets are fully open and screens in the water inlet valve or hoses aren't clogged. For causes and remedies of these and other problems, see your instruction booklet.

Clothes Dryer

Vacuum lint from the dryer's ducts and surrounding areas twice a year. If your dryer doesn't do its job, be sure the cord is plugged in and isn't defective. Next, check the circuit breaker. After that, clean the lint trap and remove any lint from the exhaust duct with a vacuum or piece of wire.

If you have a gas dryer and it doesn't heat, have your gas company or a qualified professional inspect the pilot or adjust the air-gas ratio. For causes and remedies of these and other problems, see your appliance manual.

Plumbing



Your plumbing should need only minimum maintenance if cared for properly. If any problems do develop, attend to them immediately to prevent larger, more costly problems.

Shutoff Valves

Shutoff valves control water flow to a particular appliance. Shutoff valves can usually be found under sinks and toilets and behind clothes washers, water heaters and other appliances. Locating the main water shutoff valve is discussed on page 2-1.

Periodically examine each shutoff valve for signs of leaks. Look for water, green crust or water stains on the valve, surrounding pipes and floor underneath. If the valve leaks, you can tighten the valve fittings with a wrench. Do not over tighten. If the leak continues, call a professional plumber.

Drains

Each plumbing fixture in your house has a drain trap. This U-shaped piece of pipe is designed to provide a water barrier that prevents air-borne bacteria and the odor of sewer gas from entering the house. Any fixture that is used infrequently should be turned on at regular intervals to replace evaporating water and insure that the barrier remains intact. Because of their shape, traps are also the source of most clogging problems.

Clogged drains are discussed in the Plumbing Emergencies section on page 2-5. Common sense can prevent your drains from clogging. Don't pour grease down a drain. Keep your drains free of hair and other debris. Do not use lye or its derivatives. It can damage your plastic drain pipe.

"Flush" your drains once a month to prevent residual grease and soap from clogging drains. Run hot water through the drain. Add three tablespoons of baking soda. Add a little more hot water. Let stand for 15 minutes, then "flush" again by running more hot water.

Plumbing Fixtures

A variety of commercial cleaners are available for cleaning sinks, showers, tubs, toilets and other plumbing fixtures. Follow the manufacturer's directions when using a cleaner. Regular cleaning will prevent soap scum buildup and discoloration. Don't use abrasive cleaners.

Periodically examine each sink and other plumbing fixture for signs of water leaking from the fixture, the water supply or the drain. Look for water, green crust or water stains on pipes, fittings and the floor underneath. You can tighten leaky plumbing fittings with a wrench. Do not over tighten. If the leak continues, call a professional plumber.

Toilets

Overflowing or clogged toilets are discussed in the Plumbing Emergencies section on page 2-6. Never flush hair, grease, lint, diapers, sanitary products or rubbish down the toilet. These wastes can stop up toilets and sewer lines.

Inspect the base of the toilet and the water supply line for leaks. If the water chamber appears to leak, the water may only be condensation forming on the outside of the tank. If you think that the toilet is leaking or if you are having other problems, consult a plumbing repair book or call a professional plumber.

A loose toilet can weaken the seal between the toilet and the drain pipe. Water can then leak along the toilet's base and damage the floor. Test the toilet mounts by grabbing the toilet with your hands and try to rock it from side to side. If the toilet moves, tighten the nuts holding the toilet to the floor on either side of the base. Tighten until snug, then test again.

Faucets

Many sinks today have modern, washerless faucets. The standard compression faucets with a washer are also common. If a faucet leaks or malfunctions, consult a plumbing repair book or call a professional plumber.

The only maintenance your faucets should require is to clean the aerators. Aerators add air to the water as it leaves the faucet, eliminating splashing and reducing water usage. To clean an aerator, unscrew it from the mouth of the faucet, remove any deposits, remove and rinse the washers and screens, replace in their original order and put back on the faucet.

Noisy Pipes

Noisy pipes can be more than an annoyance, vibrations accompanying the noise can loosen plumbing fittings and cause leaks. Noise can be caused by a number of reasons, including worn washers, loose parts in a faucet and steam in hot water pipes.

You should repair noisy pipes promptly. If you cannot locate the cause of the noise or cannot make the repair yourself, call a professional plumber.

Caulking

Caulking is used to seal around bathtubs, sinks and showers. It is normal for caulking to dry out or crack after several years. Periodically inspect caulking around sinks, showers and tubs. Look for signs of deterioration. Remove the old caulking and replace with fresh caulk. This is a simple do-it-yourself project. If you do not have a caulking gun, caulking material can be bought in applicator tubes or in disposable caulking guns.

Outdoor Plumbing

To prevent frozen pipes, drain water from outdoor faucets and pipes, insulate and wrap exposed pipes and remove and store outdoor hoses.

Electrical



The wiring in your home should meet or exceed code requirements and safety standards for the normal use of electrical appliances. Ordinarily, small appliances may be plugged into any electrical receptacle without fear of overloading a circuit. The use of a large appliance, however, or many small appliances on the same circuit may cause an overload. If a circuit breaker trips frequently, contact a licensed electrical contractor to determine whether additional wiring is needed.

Circuit Breakers

Circuit breakers protect the electrical wiring and equipment in your home. They are heavy-duty switches that serve the same purpose as fuses. When a circuit is carrying more current than is safe, the breaker switches to RESET. On most breakers, the switch has to be pushed to OFF and then to ON after the circuit trips.

“Exercise” your circuit breakers at least once a year by switching the breakers OFF and then back ON again by hand. If a breaker is frozen in the ON position, it will not trip when needed. By exercising your circuit breakers, you can verify their mechanical parts move freely. Have a professional electrician replace any circuit breaker that does not switch OFF and ON properly.

Ground Fault Interrupters

Ground Fault Circuit Interrupters (GFCI) is an electrical safety device designed to prevent electrocution. They are commonly used on bathroom, kitchen, basement, garage and outdoor circuits. Electricity is cut off instantly if there is a “ground fault” or leakage of electrical current to ground (possibly passing through a human body).

A GFCI can be built into wall outlets and circuit breakers. GFCI circuit breakers are located on your circuit panel. They have an extra button marked “TEST” or “T.” An outlet GFCI looks like an ordinary wall outlet with two small buttons marked “TEST” and “RESET” or “T” and “R.” Reset a tripped GFCI as you would reset a regular circuit breaker. On an outlet GFCI, push the RESET button.

Test each GFCI once a month by pushing the TEST button. The GFCI should trip when tested. Reset the GFCI. If it does not trip or does not reset, the GFCI should be replaced by a professional electrician.

Appliance Cords

Cords on appliances and lamps are often subject to pulling and twisting that can sever the wires inside and break down the insulation. This can result in a short circuit. Periodically inspect electrical appliance cords for signs of damage. Replace - do not repair-any electrical cord with broken wires or worn insulation.

Maintenance Schedule

Consider following a schedule for maintaining your home. A schedule will serve as a reminder of the inspections and maintenance you should perform each month and each season.

The old adage "an ounce of prevention is worth a pound of cure" was never more appropriate than when it comes to maintaining your home.

On the following pages, I've put together some maintenance pages that you can print out and use as regular checklists around your home.

Use this maintenance schedule as a guide for maintaining your home.

A general maintenance schedule lists tasks to perform once a month or as needed. Seasonal maintenance schedules list tasks to perform in the spring, summer, fall and winter.

Many items listed on the schedules should be inspected as recommended but will need only occasional, if any, maintenance. You will soon develop a feel for what tasks should be performed when.

General Maintenance

Perform every month or as needed

Safety

- ___ Inspect fire extinguishers to insure they are fully charged.
- ___ Check automatic garage door opener's safety reverse.
- ___ Test smoke detectors.
- ___ Test Ground Fault Circuit Interrupters.

Heating & Cooling

- ___ Clean or replace air filters when the system is in use for heating or cooling.
- ___ Vacuum heat registers, vents and radiators .
- ___ Listen to your system for unusual noises .

Appliances

- ___ Drain water from bottom of the water heater.
- ___ Grind ice cubes to clean garbage disposal. Flush with hot water and baking soda.
- ___ Clean dishwasher strainer and spray arm.
- ___ Clean range fan's grease filter.
- ___ Clean frost-free refrigerator's drain and drain pan.

Plumbing

- ___ Pour water down unused drains .
- ___ Clean debris from sink and tub drains. Inspect tub drain's rubber seal. Rinse.
- ___ Clean faucet aerators and shower heads .

Spring

Exterior

- ___ Inspect roof materials & roof flashings .
- ___ Clean & inspect gutters & downspouts .
- ___ Have a chimney sweep clean & inspect chimney after burning season ends.
- ___ Inspect & clean siding .
- ___ Inspect vents, chimneys & other protected areas for bird & insect nests.
- ___ Clean window & door screens. Repair or replace damaged screens.
- ___ Inspect weatherstripping around doors, windows & garage doors. Repair as necessary.
- ___ Inspect caulking & re-caulk as necessary.
- ___ Inspect foundation for cracks, moisture & insects.
- ___ Clean debris away from home, utility equipment & other structures.
- ___ Trim trees & shrubs away from home.
- ___ Inspect wood decks, steps & rails for loose or damaged boards & raised nails.
- ___ Clean space between boards on wood decks, walks & steps.

Heating & Cooling

- ___ Have heat pump or air-conditioning system serviced before cooling season begins .

Appliances

- ___ Inspect water heater's temperature pressure relief valve for signs of leaks or discharge.
- ___ Replace smoke detector batteries. Vacuum around smoke detector & its sensor .

Summer

Exterior

- ___ Clean & lubricate garage door hinges, rollers & tracks. Tighten screws.
- ___ Inspect paint & sealant on exterior & garage doors, particularly along bottom edge.

Interior

- ___ Inspect walls & ceilings for cracks, bows, sags & leans.
- ___ Clean & seal tile grout.

Appliances

- ___ Tighten garbage disposal's drain connections & fasteners.
- ___ Inspect dishwasher for leaks.
- ___ Clean range fan blades & housing.
- ___ Clean & test refrigerator door gasket.
- ___ Vacuum refrigerator coils.
- ___ Clean clothes washer's water inlet filters. Inspect hoses for leaks.
- ___ Vacuum lint from clothes dryer ducts & surrounding areas.

Plumbing

- ___ Inspect sinks & plumbing shutoff valves for leaks.
- ___ Test toilets for stability & inspect for leaks.
- ___ Inspect caulking around sinks, showers & bathtubs. Re-caulk as necessary.

Electrical

- ___ "Exercise" circuit breakers.
- ___ Check for frayed appliance cords.

Winter

Exterior

- ___ Inspect roof after large winter storms.
- ___ Inspect gutters and downspouts during a rain storm for leaks.
- ___ Keep gutters clean of ice and debris.
- ___ Check for drafts along doors and windows. Caulk and repair weatherstripping if necessary.

Appliances

- ___ Tighten garbage disposal's drain connections and fasteners.
- ___ Inspect dishwasher for leaks.
- ___ Clean range fan blades and housing.
- ___ Clean and test refrigerator door gasket.
- ___ Vacuum refrigerator coils.
- ___ Clean clothes washer's water inlet filters. Inspect hoses for leaks.
- ___ Vacuum lint from clothes dryer ducts and surrounding areas.

Plumbing

- ___ Inspect sinks and plumbing shutoff valves for leaks.
- ___ Test toilets for stability and inspect for leaks.
- ___ Inspect caulking around sinks, showers & bathtubs. Re-caulk as necessary.

Electrical

- ___ “Exercise” circuit breakers.
- ___ Check for frayed appliance cords.

Fall

Exterior

- ___ Inspect roof materials & roof flashings.
- ___ Clean & inspect gutters & downspouts.
- ___ Inspect siding.
- ___ Inspect caulking & re-caulk as necessary.
- ___ Inspect foundation for cracks, moisture & insects.
- ___ Clean debris away from home, utility equipment & other structures.
- ___ Trim trees & shrubs away from home.
- ___ Inspect wood decks, steps & rails for loose or damaged boards & raised nails.
- ___ Clean space between boards on wood decks, walks & steps.
- ___ Drain water from outdoor faucets & pipes. Remove & store outdoor hoses.

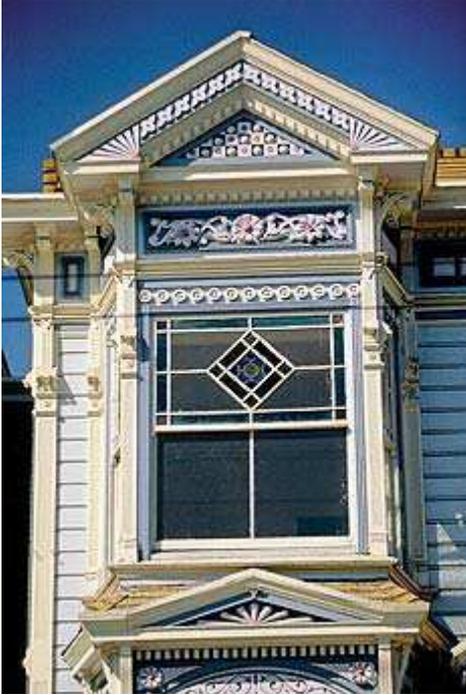
Heating & Cooling

- ___ Clean ceiling fan blades.
- ___ Clean bathroom exhaust fan grills & fan blades.
- ___ Have heating system serviced before the heating season begins.

Appliances

- ___ Inspect water heater’s temperature pressure relief valve for signs of leaks or discharge.
- ___ Replace smoke detector batteries. Vacuum around smoke detector & its sensor.

I Look Forward To Hearing From You...



I hope you found my book helpful and that it continues to offer you insights into things you should be aware of around your home. And remember, please share it with friends – everybody should know as much as possible about their home...

If you have questions about your home and would like me to inspect your house - Call me at the number provided on the cover of this book – I can always help you better understand your home and address potential problems before they become serious.

As you know, I'm a Certified Home Inspector and I'm committed to excellence in what I do...

I enjoy meeting homeowners and helping people because...

House, home, family – it's really what we're all about. A safe and sound home matters – It's literally keeping the roof over our heads – and sometimes we spend more time reading the DVD player manual than learning about our homes.

Our house is the largest investment most of us will ever make, but proper home care isn't just about protecting our investment – because bricks and mortar make a house, but the joy we get from it makes it home. From my house to yours, I wish you the very best.

Thanks again for choosing my book, I hope you enjoyed it and I look forward to hearing from you.

