

# HOME MAINTENANCE BINDER

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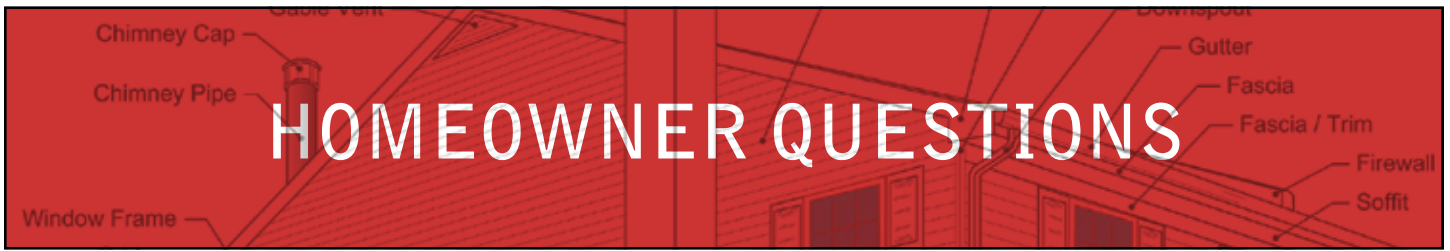


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## Why should I perform a regular checkup?

Detailed checkup is like a visit to the doctor's office for your medical checkup. You want to know what's okay and what's not okay. And you want to take measures to fix things that need fixing before the problems get out of hand.

Planning problems really helps you to preserve your home. And doing preventive maintenance can extend the life of equipment and materials, which generally proves to be less expensive than replacing these components.



## You may ask yourself how do I perform the home check up?

Read this manual for a general idea of what the checkup entails. The next few pages will provide you with what needs to be inspected and signs to look for while performing the checkups at given times each year.

## Why should I keep records?

Permanent records of maintenance will enhance the marketing of your home when the time comes to sell. We've provided room for you to record each maintenance task you performed. When you're ready to sell your home, just pull out this manual to show the new owner the special care you've taken to keep your home in top condition.



The frequency of inspection and service given in the charts reflect the minimum amount of time and service your house and various household appliances will require. Items may need to be checked more often or at other times depending on the number of occupants, types of materials, local conditions, household pets, and other variables.

GROUPS & YARD	SPRING	FALL	ANNUALLY	AS REQUIRED
Drain outside water lines and hoses.		🔍		
Clean area wells, window wells, and storm drains.	🔍	🔍		
Check driveways and sidewalks for cracks, yard for settlement and soil erosion.	🔍			
Check safety and reversing mechanism on electric garage door operators, adjust if needed.			🔍	
DOORS & WINDOWS	SPRING	FALL	ANNUALLY	AS REQUIRED
Check doors, windows, and trim for finish failure.	🔍			
Check glazed openings for loose putty.	🔍			
Check for broken glass and damaged screens.	🔍			
Check and lubricate window hardware.			🔍	
Check weather-stripping for damage and tightness of fit.	🔍	🔍		
Check caulking at doors, windows, and all other openings and joints between dissimilar materials (like wood and masonry).	🔍			
EXTERIOR WALLS	SPRING	FALL	ANNUALLY	AS REQUIRED
Check masonry for cracks and loose joints.	🔍			
Check painted surfaces for paint failure.	🔍			
Check siding and trim for damage and decay.	🔍			

ROOF	SPRING	FALL	ANNUALLY	AS REQUIRED
Check for damaged or loose shingles, blistered roofing.	🔍			
Check underside of roof where accessible for water stains or dampness.	🔍			
Check for damaged flashing.	🔍			
Check for damaged gutters, downspouts, hangers, strainers, and rust.	🔍			
Clean gutters and downspouts.				🔍
Sweep debris from flat and low slope roofs.			🔍	
Evaluate roof for future replacement.			Inspect	
Check vents, louvers, and chimney caps and housing for birds nests, etc.	🔍	🔍		
Check fascias and soffits for paint failure and decay.	🔍			
Check antenna by wires and supports.			🔍	
Check masonry chimneys.	🔍			
INTERIOR SURFACES	SPRING	FALL	ANNUALLY	AS REQUIRED
Check all joints in ceramic tile, laminated plastic, and similar surfaces.	🔍	🔍		
Check grouting around tubs, showers, and sinks.	🔍	🔍		

FLOORS	SPRING	FALL	ANNUALLY	AS REQUIRED
Check for wear and damage, particularly where one material meets another.			🔍	
Evaluate for replacement or refinishing.			🔍	

PLUMBING	SPRING	FALL	ANNUALLY	AS REQUIRED
Check flush valves, faucets, hose bibs, and supply and drainage piping, including those in basement and/or crawlspace.			🔍	
Check septic tank.				🔍
Check water heater.			🔍	

ELECTRICAL SYSTEM	SPRING	FALL	ANNUALLY	AS REQUIRED
Check condition of lamp cords, extension cords, and plugs. Replace at first sign of wear or damage.	🔍	🔍		
Check exposed and overhead wiring for damage and missing insulation. Replace or repair as needed.			🔍	
If fuses blow or trip frequently, or if you feel a slight shock or tingling, call an electrician to locate the causes and make repairs.				🔍
Test Ground Fault Circuit Interrupters (GFCI's).	🔍	🔍		

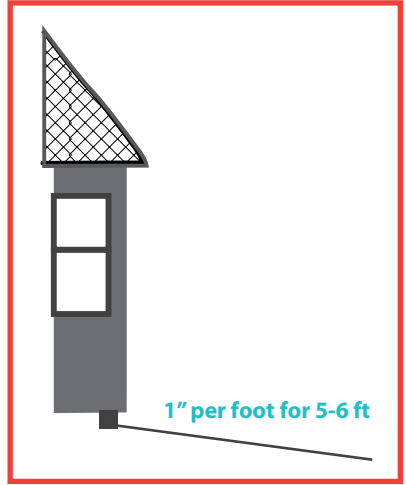
FOUNDATION	SPRING	FALL	ANNUALLY	AS REQUIRED
Inspect for signs of termite/pest infestation.			🔍	
Check grading to assure that water will drain away from the foundation			🔍	
Check basement or crawlspace for dampness and/or leakage following wet weather.			🔍	





## Grading and Drainage

Any system of grading or landscaping that creates positive drainage (moving water away from the foundation walls) will help keep a basement dry. Flower beds, loose mulch areas, railroad ties, and other landscaping items close to the foundation trap moisture and contribute to a wet basement. To establish a positive grade, a proper slope away from the house is 1" per foot for approximately 5 to 6 feet. Dirt should be 6" to 8" below wood surfaces and/or sill plates. Trim back shrubberies that are close to the home.



## Service walks, Driveways, Patios

Any hard surface that is close to the house should be properly pitched to direct water away from the foundation. Replacement or mud jacking may be necessary to gain proper picture. Cracks should be filled to prevent damage from water and frost.

## Exterior Wood Surfaces

All surfaces of untreated wood need regular applications of paint or special chemicals to resist rot. Porch or deck columns and fence posts which are buried in the ground and made of untreated wood will rot within a year or two.

## Balcony, Decks, Porches

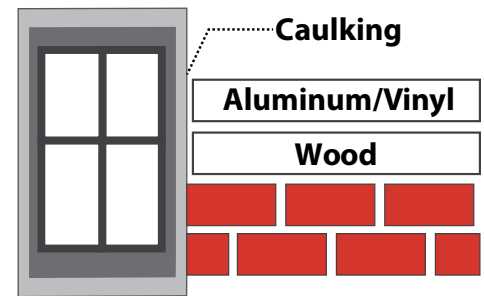
It is recommended that any walking area that is over two feet off the ground have railings and balusters. For safety reasons, it is also recommended, any steps with three or more risers need a hand rail. The spacing between balusters should be 4" or less for safety reasons. Check floors and corner posts for rot and proper installation.

## Doors and Windows

These can waste an enormous amount of energy. Maintain the caulking around the frames on the exte-

rior. Old caulk should be removed before applying new caulk. Window that have leaky storm windows will usually have a lot of sweating. Well sealed storms that sweat indicate leaky windows. It is the tighter unit that will sweat (unless the home has excess humidity to begin with).

Inspect all doors and windows for proper fit, chipped or peeling paint, cracked or missing caulk and loose or missing putty. Check for broken glass. Small cracks in corners can be patched with silicone. Inspect storms for weep holes, to allow water to drain from the sill. Floor tracks on sliding doors should be cleaned and waxed. Check weather stripping at doors and windows for damage to make sure it fits snugly.



## Exterior Wall Surfaces

Brick and stone veneer must be monitored for loose or missing mortar. Some brick and stone are susceptible to spalling. This can be caused when moisture is trapped and a freeze/thaw situation occurs. There are product on the market to seal out the moisture.

Inspect all painted surfaces thoroughly for peeling or cracked paint. Wood that exhibits blistering or peeling paint should be examined for possible moist sources such as roof leaks, bad gutters, interior moisture from baths, laundry rooms, or from a poorly ventilated crawlspace. Some paint problems have no logical explanation but many are a symptom of an underlying problem. Localized blistering maybe a clue to the cause. Wood siding should not come into contact with the ground. It is recommended that a clearance of 6” to 8” be maintained.

Metal siding with dent and scratch. Oxidation is a normal reaction in aluminum. There are good cleaners on the market, and it is recommended that they be used occasionally. Metal siding can be painted. Inspect siding for nail pops, warped boards, missing or broken mortar, and paint flaking or peeling.

**CAUTION!** Homes built before 1978 are likely to have lead in the paint. Check with your paint store for proper removal. (You may also find important information for removing hazardous materials within your State Government web pages.)

Windowsills are subject to severe exposure to sun and rain. These should be maintained to be prevent rot.



## Roofing and Surface Water Control

Roof and surface water must be controlled to maintain a dry basement. This means keeping gutters cleaned out and aligned, extending downspouts, installing splash blocks, and building up the grade so that roof and surface water is diverted away.

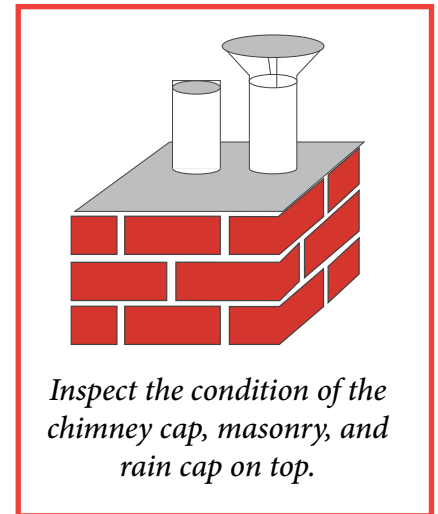
Inspect the roof, chimneys, etc. from the ground with binoculars or from a ladder against the eaves. Do not get on the roof if the pitch or weather conditions presents a safety hazard. If you spot problem areas, it is recommended that you hire a professional home inspector to evaluate the situation.

The roof covering should be visually checked in spring and fall for any visible missing shingles, damaged coverings, moss build up, nail pops, or other defects. Before re-roofing, the underside of the roof structure and roof sheathing should be inspected to determine that the roof structure can support the additional weight of the shingles and that the roof sheathing is in good condition.

Trim back any tree branches that overhang the house. This will prevent oranges from rubbing against the roof during heavy winds are ice buildup. This will also allow sun to get at the roof, preventing mildew and moss from attacking and damaging the shingles. There are zinc products on the market that will provide a deterrent to moss.

Wood shakes and shingles vary in aging due to the quality of the material, installation, maintenance, and surrounding shade trees. Ventilation and drying of the wood material is critical in extending the life expectancy of the wood. Commercial preservatives are available on the market, which could be applied to wood to impede the deterioration.

Tile and Slate roofs should be inspected occasionally to determine if any are missing or cracked. A roofer who specializes in this type of roof should be contacted. Do not walk on this type of roof. Look for problems such as damage around the masonry chimney, particularly at mortar joints, caps, and flashing. All roof penetrations such as skylights, plumbing vents, and bath vents should be checked from



the rooftop. Check the interior of the roof for any evidence of leaks around each penetration.

Blocked gutters and downspouts are a major cause of paint failure and decay of fascias, soffits, and the roof's outer edge. Gutters should be cleaned in the spring and in the fall. Look for leaks at seams, corners, and caps, etc. These can usually be sealed with a proper caulk material. Galvanized gutters rust from the inside out, and painting the inside of the gutter may extend its life. Factory primed or painted gutters are recommended. Aluminum gutters hold paint well and do not rust. Downspouts need to be properly supported and cleaned, along with the gutters. Downspout extension should be properly attached (screwed or pop riveted) and extend 4-6 feet or more from the property.



## Natural Enemies

Roof coverings don't last forever. Their natural enemies work against them over time to wear out any roof coverings.

**Sun:** The constant exposure to ultra-violet radiation degrades organic ingredients in roof coverings. The covering heats up and dries out over and over again. Too much sun on wood roofs dehydrates the shingles, causing them to become brittle. Thermal expansion and contraction can destroy adhesion materials in asphalt shingles, for example, and cause cracking in other roofing materials. The southern or southwestern exposures on a home often wear out faster than the northern or eastern.

**Rain:** Although roof covering systems are designed to protect the roof's structure from water penetration, rain eventually takes a toll on any roof covering. Some ingredients used in roof coverings are soluble and will dissolve over time. Rain washes away granular or gravel finishes in roofing such as asphalt shingles and built-up roofing (BUR). Constant wetting of wood shingles can cause them to rot. Metal roofs are susceptible to rust.

**Wind:** Strong winds can lift shingles off a building. Wind blows rain against a roof and can drive water under the edge of the shingles and tiles. Wind can also blow sand against the roof's surface, causing erosion of the covering. With wood shingles, for example, sand erosion can remove enough of the top layer so they no longer protect the shingles underneath.

**Trees:** We love the cozy effects of trees overhanging the house, but they can do a great deal of damage to a roof. Branches that scrape back and forth over the roof's surface can remove the granules from an asphalt shingle roof. Trees can provide too much shade and, as a consequence, can keep a roof from properly drying out after a rain. Wood shingles that cannot properly dry out can become rotted over time. Leaves block up gutters and downspouts, causing water damage. And, obviously, falling

branches are a danger to any roof.

**Moss:** Moss reacts with the organic materials in wood and hastens its breakdown. Wood and built-up roofs (BUR) are especially vulnerable to the decaying effects of moss. Its root system penetrates the surface and creates paths for water to get into and under the roof surface. On other roofing systems, it rusts nails and impedes water runoff.

**Snow and Ice:** A phenomenon called **ice damming** can occur in northern climates when melting snow on the roof refreezes at the roof's overhang. This causes an ice dam to form. Water from melting snow higher up on the roof becomes blocked by the ice dam and cannot escape to the gutters. This water backs up under shingles and seeps into the interior.

Ice dams occur when enough heat escapes from the attic, at the upper part of the roof, to melt the snow and, at the same time, the lower part of the roof at the eave, is below freezing. Better attic insulation and ventilation would provide a good remedy for this situation.

**Time:** No roof covering lasts forever. We just haven't figured out how to make the ideal roof covering that would never have to be replaced. This chart shows the estimated natural lifetime of various types of roof coverings.

ROOF COVERING	LIFE EXPECTANCY
Asphalt shingles (Three-tab)	15 - 30 years
Asphalt multi-thickness shingles (Architectural)	20 - 30 years
Asphalt interlocking shingles	15 - 25 years
Roll Roofing	10 years
Built-up Roofing (BUR)	10 - 20 years
Wood Shingles/Shake Roof	10 - 40+ years
Clay Tiles	20+ years
Cement Tiles	20+ years
Slate Shingles	30 - 100+ years
Asbestos Cement Shingles	30 - 75 years
Metal Roofing	15 - 40+ years
Single Ply Membrane	15 - 25 years



## **Walls and Ceilings**

Under normal circumstances, the interior surfaces need little maintenance, other than an occasional washing and repaint job. Pay attention to these areas, periodically taking a close look at areas that might be vulnerable to leaks such as outer walls, below bathrooms, around light fixtures, and so on. If any stains suddenly appear, you will need to further investigate the cause.

Mildew or mold on ceilings and in its closets is an indication that excessive moisture is present. This may also be evident by sweating windows. Excessive moisture can cause extensive damage to a house. Moisture problem can occur for many reasons, a few being improper venting (i.e. blocked vents or no vents), a tightly built home, a high efficiency gas furnace, etc. Condensation problems that are persistent should be checked by a professional home inspector. Windowsills are very susceptible to damage from the sun, moisture, conditions are too dry, etc. It is a good idea to keep a coat of varnish or paint on these areas to prevent rot.

All painted and natural-finished surfaces should be inspected for coating failure and damage. Check floor material for wear and damage.

Inspect grout and caulk around sinks, tub, showers, and other damp locations for damage or failure. These areas must be maintained or damage can be done to areas adjacent or below. Grouting between ceramic tile in showers and tubs need to be checked frequently, especially around the areas closet to faucets. Tap gently on the tile and if loose, this may indicate damaged wall board behind the tile.

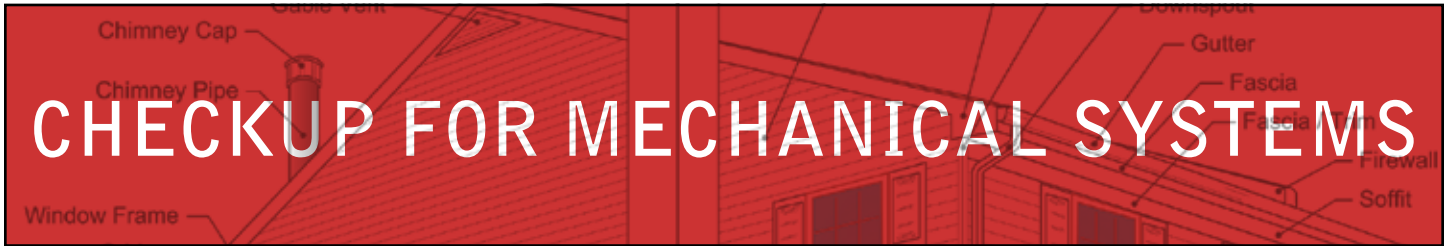
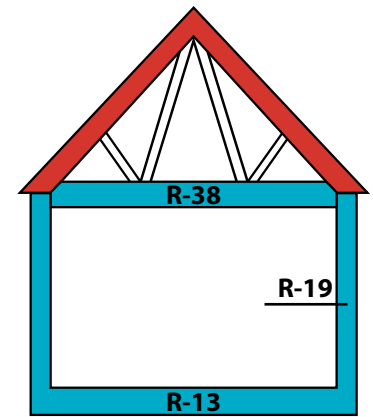
## **Attic Area**

If you have an attic that is accessible, it is imperative that you inspect this area several times a year. In cold weather climates, the roof sheathing and nail heads should be checked for excessive frost buildup. This is an indication that venting may be inadequate. Black or darkened sheathing may also be an indicator that there is excessive moisture due to improper venting. Don't forget to also inspect the attic during the summer. If on a warm, windless day the temperature in the attic is more than 10 to 15 de-

grees warmer than the outside temperature, then more ventilation is needed.

While in the attic, check the insulation. The recommended insulation in the attic area is R-38, or approximately 12 inches.

*Know the recommended insulation values for walls, attics, and under floor systems..*



## Electrical System

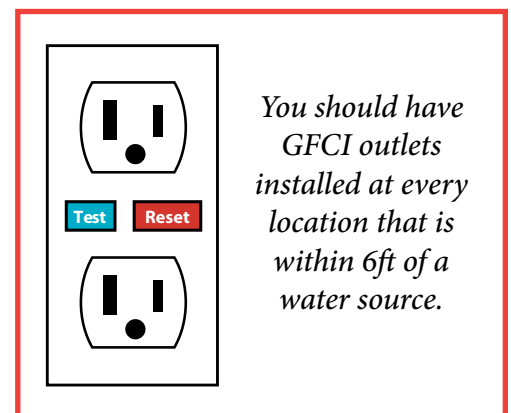
There are a few basic things the homeowner should be aware of and examine occasionally. Locate and tag the electrical main turnoff for the house. All adult occupants should know the location in case of an emergency. Trip the circuit breakers every six months and Ground Fault Circuit Interrupters (GFCI's) every month. Check the condition of lamp cords, extension cords, and plugs. It is a good idea to test outlets near water for the proper polarity and grounding. Most hardware stores carry inexpensive testers. If fuses blow or breakers trip frequently, have an licensed electrician determine the cause.

It is recommended that GFCI's be installed where outside outlets exist and for outlets within 6 feet of water. Outlets for sump pumps, refrigerators, and washing machines should not have a GFCI, as the surges from these motors will trip the outlet and shutoff the unit.

It is a good idea to mark each breaker or fuse in the main panel; naming the outlet and switches they control.

## Electrical safety rules

- Never work with or near when hands or feet are damp.
- Never remove service panel covers.
- Avoid using extension cords whenever possible.
- Never replace blown fuses with larger fuses.
- When in doubt, call a licensed electrical contractor.



## Plumbing System

Identify and tag the water supply shutoff valve for the entire house/system. Then look for the shutoff for each fixture. There should be a shutoff for each toilet, one for the cold water inlet for the water heater, and there may be shutoffs under the sinks. Identify the main gas valve shutoff and each appliance shutoff.

Periodically, all faucets, hose bibs, and other valves should be checked for leaks. Run the water, look under the sink cabinets for leaks, and then go to the basement or crawlspace to determine if there are any leaks present there.

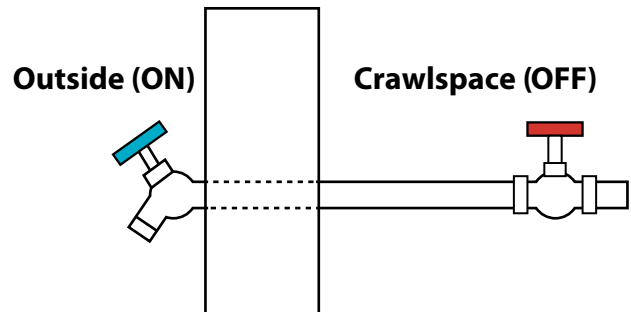
Water toilet flushing systems frequently waste water. Remove the top of the toilet tank cover periodically to check its operation. These leaks are usually inexpensive to repair. Check the toilet bowl to make sure it is firmly attached to the floor. If it is not, it may need a new wax seal.

During the colder winter months, the outside faucets may need to be “winterized”. This process involves draining the exterior water lines, hose bibs, and sprinklers. Turn the valve to the hose bib off on the inside of the house and the outside hose bib valve on, to drain the line.

Locate the water heater and read the instructions in the booklet or on the side of the water heater. Depending on the manufacturing specifications,

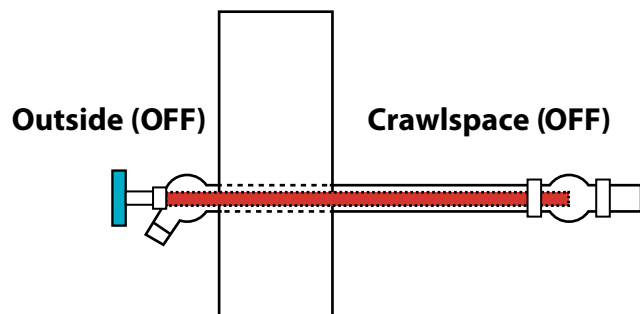
drain 2-3 gallons of water from the tank every 3-4 months. This will help remove any sediment that may have accumulated, in the bottom of the tank, during those months. The pressure relief valve located near the top of the water heater should be opened periodically to see that it's in good working order. If either of these valves have not been opened in some time, they may not seal properly when closed and a new washer may be required. And, as always, if your in doubt of your abilities, please hire a

### In Winter Months...



*Pictured above: Older style Hose bibs need to be shutoff in the winter months from the crawlspace or basement side, and, on the outside, the lines drained to prevent pipes from cracking from ice expansion.*

*Pictured below: Newer style Hose bibs can be shutoff in the winter months from the outside. The long internal shaft (red) to the valve prevents freezing and ice expansion during the winter season.*



licensed professional to assist you.

All valves in the home should be opened periodically. If these valves appear corroded, they should be cleaned and checked for leaks. If they are corroded, there is a good chance that they may leak after you clean and operate them. Therefore, it would be wise to start at the main water turnoffs to the house and water heater, and then approach the individual appliance, faucet, and plumbing valves.

## Water Softener

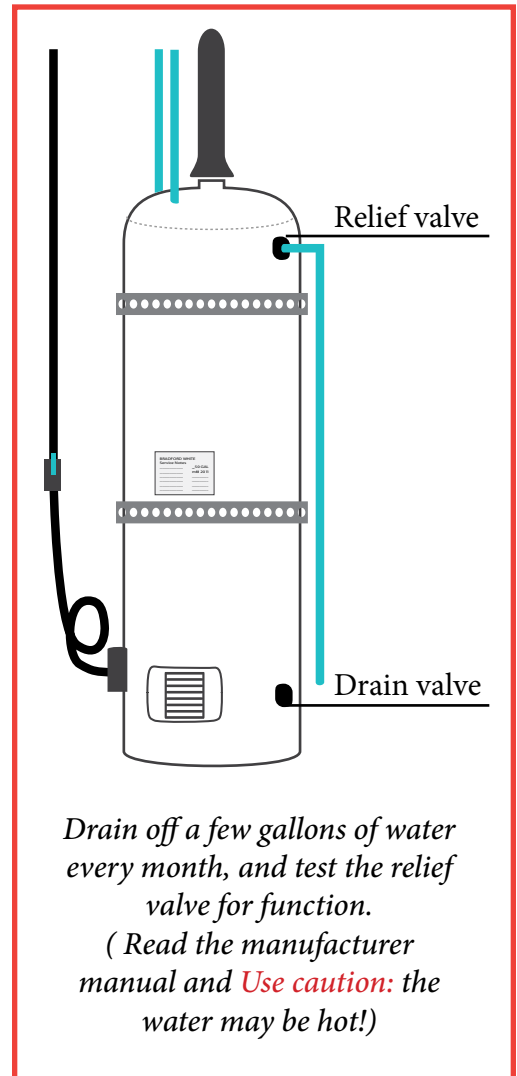
If you have a hard water, it is recommended that a water softener be installed. This will extend the life of your water heater and supply/waste pipes, in addition to providing soft water for washing clothes and bathing. You can order a water hardness test to determine if your water should be softened. There are many test available and are generally not too expensive. You can find them online or at your local hardware store. (typically \$12 a test)

## Sump Pumps

You may or may not have a sump pump on your property. There are different uses for sump pumps. For the perimeter of your home, a **clear water sump pump** removes ground water, utilizing drainage systems and a sump pump to pump it away from the house. (Usually a drain tile system that runs to a sump pump crock.) A **sanitary sump pump** is used to discharge gray water into a septic or sewer system. This is usually water from a washing machine or basement sink. These types of pumps are normally present if there are waste lines that are below the normal gravity fed waste lines. You'll often see them present in homes that have septic systems.

## Heat Systems

It is recommended that the heat system be serviced on an annual basis. Oil Furnaces have nozzles and strainers that need to be replaced on an annual basis or the efficiency of the furnace drops significantly. Newer gas furnaces should be serviced every couple of years. Once a gas unit gets to be 10 years old it should be checked annually for maintenance.



In a forced air heating and/or cooling system, the blower and motor must be protected from dirt and dust. For this reason, filters are located in the return air side of the blower unit. A standard filter should be changed on a monthly basis. Some filters can be changed or cleaned less frequently, depending on the type, manufacturers instructions, and usage of the equipment. Clogged or missing filters can do serious damage to the heat exchanger and air conditioning evaporators.

The blower, motor, or hot water circulating pump motor should be oiled twice a year, unless they have sealed bearings. Refer to the owners manual quantity and type of oil to use. Check the fan belts and pulleys for wear and proper tension. (Make sure the unit is turned off when checking.)

If you have an oil heater, periodically check the oil tank for leaks. If you notice oily smoke smells or soot, have the unit serviced. They should be serviced annually.

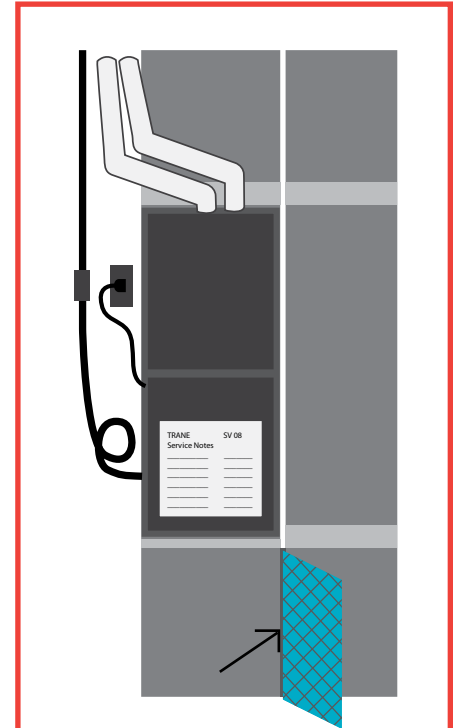
Keep bleaches, paint, and other materials sealed and away from your heating unit. Damage to the unit can occur if fumes from close by chemicals are drawn into the heat unit.

## Humidifiers

Humidifiers should be inspected for leaks and lime build up. Filters should be changed on an annual basis.

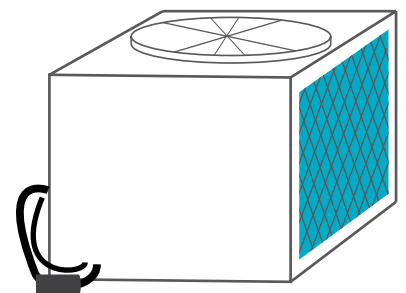
## Air Conditioning, Heat pump Systems

It is recommended that these systems be serviced each spring before starting up. The circuit breakers to these units should be on for a minimum of 24 hours and the outside temperature should be at least 60° for the preceding 24 hours or damage can occur to the compressor. Refer to the manufacturer's operating instructions before turning on the unit. The condensing unit, which is located outside, should be cleaned periodically. Pollen, leaves, and other debris should be hosed off. Keep the area around the unit open as not to impede the air movement.



*Air Filters on some furnaces need to be changed monthly.*

*Keep the outdoor compressor free of leaves and debris.*



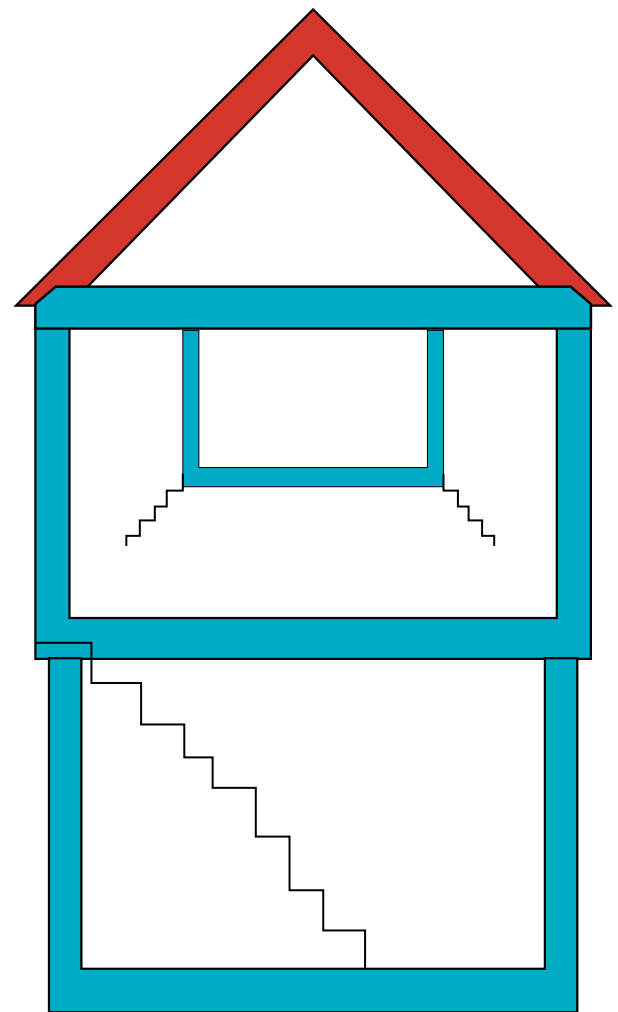


The area of the country you live in will determine the types of mechanicals you will encounter and the conditions that will affect the air conditioning unit. Be present when your unit is serviced, and find out the maintenance that will be required to prolong its life.



Many of the items above can have impact on the overall structural condition of your home. Item such as negative grade, blocked gutters and downspouts, and hard surfaces pitched toward your property can contribute to affecting the integrity of the structure.

The structure needs to be monitored on an ongoing basis. Walk around the house looking for sags in the roof, loose bricks on siding or chimney, buckling siding, and windows or doors that have shifted. Some of these situations may have occurred over a number of years and may have stabilized. If you are concerned or uncertain, hire a professional home inspector to evaluate the situation. Document areas of concern, then monitor them to see if changes are occurring. If things have stabilized, you can maintain the integrity by performing the maintenance we've talked about in this manual.



## More Useful House Tips

**Exterior:** Building exteriors are exposed to all the elements of nature, such as sun, rain, wind, and ice. The primary function of the external siding is to keep out the elements, as well as the critters. Different parts of the country present different challenges. The hot sun on the south and west faces of a building will cause greater wear, while the north and shady sides are more susceptible to moss and mold and other moisture related problems.

Over the next few pages, we'll look at different types of siding, possible problems for each type, and the maintenance issues.

## Wood siding

### *Common problems with wood siding:*

- Splitting wood and nail pops can allow moisture to enter the structure and damage the wood.
- Rot behind window flower boxes is often unseen until the siding is already damaged.
- House covered with plants, ivy, and other vines/organic material are more likely to allow moisture to wick in to the siding, and allow pests to enter the structure.
- Fading paint, peeling paint, and stains allow moisture to penetrate the wood and, if left untreated, can eventually damage it.

### *Recommended maintenance:*

- Inspect each summer and wash any dirt, moss, etc., from the siding. Replace or repair any areas that are damaged or rotting.
- Pressure washing can be effective if done properly. But be careful, excessive pressure can damage wood.
- Re-paint or stain as needed to protect the surface of the siding
- In the spring and fall trim any vegetation back 6”-12” from the siding. This will keep pests and moisture from getting in contact with the structure.

### *Common problems with imitation wood siding:*

- This type of siding has a tendency to delaminate and swell. Several of these products are involved in litigation.

## Vinyl siding

### *Common problems with vinyl siding:*

- Loose or missing planks.
- Courses not leveled.
- Bad installation caused joints to separate.
- Becomes brittle in temperature at or below freezing and can break on impact.
- Siding becomes buckled or bowed (improper nailing).

### *Recommended maintenance:*

- Replace any broken, bowed or buckled pieces or concerns. Clean annually.

## Metal siding

### *Common problems with metal siding (aluminum or steel):*

- It will oxidize over time.
- Color will fade.
- It will dent.
- Prone to rust.

### *Recommended maintenance:*

- Wash annually and replace or buckled siding with proper nailing techniques.
- Re-paint as needed to prevent the surface from rusting. Areas that have developed rust can be treated with a Rustoleum type paint. Will slow and/or stop the rust from developing in to holes.

## Stucco siding

### *Common problems with stucco:*

- Cracks in surface of stucco.
- Bulging from wall.
- Separation from lath.

### *Recommended maintenance:*

- Ensure that cracks are sealed, to prevent moisture penetration.
- Repair bulging or loose stucco.
- Maintain proper flashings.
- Nowadays there synthetic blends of stucco that have plastic polymers added to create a stucco that has elasticity. This will help with the formation of cracks.

## Synthetic Stucco (EIFS: Exterior Insulated Finish Systems)

### *Common problems with EIFS:*

- It is, often times, installed wrong and if improperly installed can trap moisture. This can cause extensive rotting to framing members, especially in the Southeast.

### *Recommended maintenance:*

- Retain an EIFS specialist to inspect and make recommendations. Litigation is ongoing. Without a specialist to check seals and flashings and verify that it was installed properly, there are little to no signs that there is something wrong, until the framing members are rotted and it is too late.

## Brick Exterior

### *Common problems with brick, solid or veneer, siding:*

- No weep holes for veneer brick.
- Mortar joints crumbling on older brick structures.
- Brick pulling loose from walls.

### *Recommended maintenance:*

- Power wash as needed. Do not sandblast.
- Have mason repair any mortar that is loose, damaged, or pulling away.
- Adding weep holes will allow moisture to evaporate or escape from behind the brick and will prolong the life of the framing members.

## Exterior windows and storms

### *Common problems with windows and storms from the exterior:*

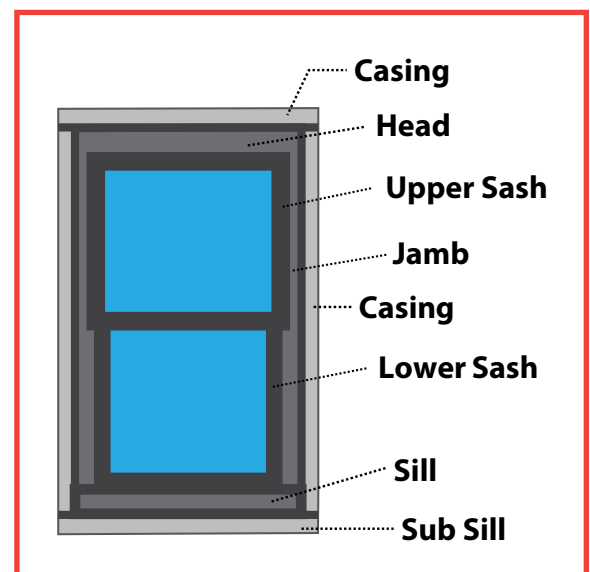
- Rotted window sills.
- Storm windows leak air.
- Putty missing and/or glass cracked.
- Window frames having missing/peeling paint.

### *Recommended maintenance:*

- Ensure that storm windows fit tight.
- Keep weather-stripping in good condition.
- Protect sills from rain, ice, and snow damage.
- Keep window frames/sills and storms well painted. This will prevent any moisture from entering the framing members and causing rot.

## Window Construction

All exterior window components are inspected during the exterior inspection. Although most standards of practice state that a representative number of windows must be checked for operation, that's left to be done once the inspector actually goes inside the house.



The components showing on the exterior of the window are the sashes (upper and lower in the traditional window), the head and jambs, the sill and the sub-sill, and the casings around the window.

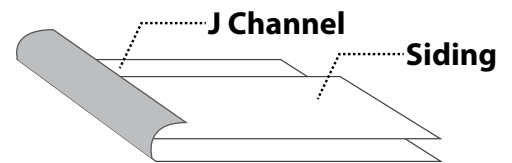
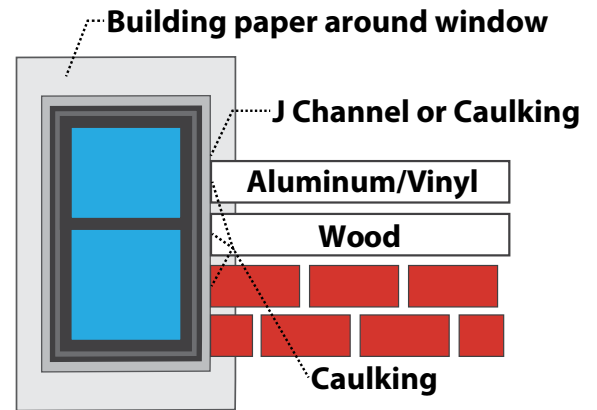
For a weatherproof opening in the exterior wall, building paper is laid around the window. Ideally, flashings are present at the top of the window. Vinyl and aluminum siding may be installed with J channels around the openings that the siding fits into, forming a weatherproof seal. If not, caulking is required around the windows the same as it is with other siding materials.

There are many styles of windows. The most common is the double hung window with two sashes that move. The upper sash is on the outside; the lower on the inside. Windows may still be single hung where only the lower sash moves. A slider window is one with a sash that moves horizontally.

Sashes can be hinged into a window framing to open in a variety of ways. The awning window is hinged at the top and opens outward. A hopper window, often found in basements, is hinged at the bottom and opens inward.

The casement window is hinged at the side to open outward. The pivot window pivots from a center hinge. The jalousie window contains narrow strips of glass in a device that allows the strips to move all together, lifting out from the bottom.

A fixed-pane window is one that does not open or close. A picture window is basically a large fixed pane window. Combination windows can be made up of a large fixed-pane window in the center and two smaller casement/slider windows. Some fixed pane windows have snap in muntins ( a grid of crossed pieces of wood or plastic) that fit into the window. A true multi-pane window has small



## SLIDING WINDOWS

- Single hung
- Double hung
- Horizontal sliders

## HINGED WINDOWS

- Awning
- Casement
- Hopper
- Jalousie
- Pivot

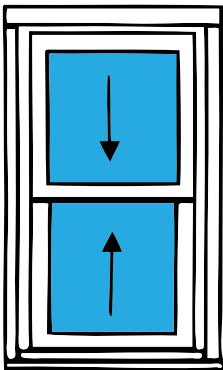
## MULTIPLE WINDOWS

- Combination
- Bays and box bays
- Bow windows

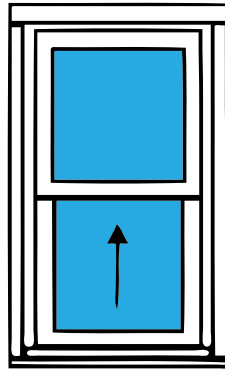
pieces of glass set into wood or lead muntins.

Bay windows are made up of three windows set at angles with each other, in a bay that protrudes from the structure. There is usually a larger fixed pane window on the length of the bay with standard size, opening windows at each side. In a boxed bay, the windows are at right angles. A bow window, similar to a bay, has more than three windows, each at angles from the others.

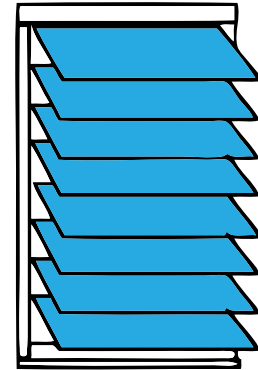
### DIFFERENT STYLES OF WINDOWS



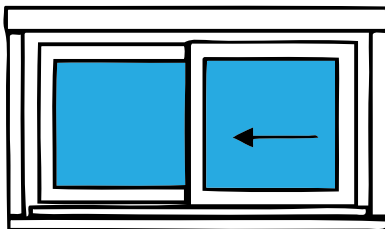
**Double Hung**



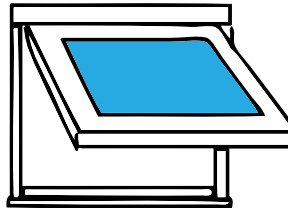
**Single Hung**



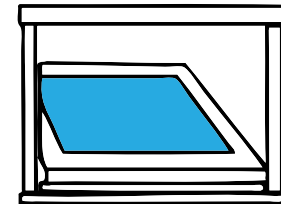
**Jalousie**



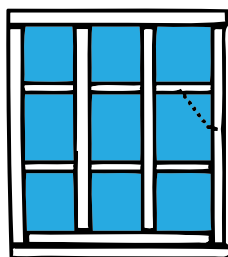
**Slider**



**Awning**

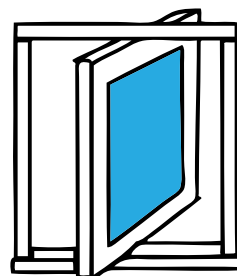


**Hopper**

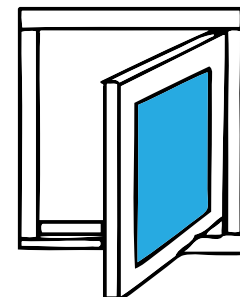


**Fixed Pane**

Muntins



**Pivot**



**Casement**

## Landscaping and Grading

The basic concern for landscaping and grading is to determine whether they can cause damage to the exterior and foundation. The principles are simple:

1. Vegetation and grading should not encourage water flow toward the house.
2. Vegetation should not be allowed to damage siding, trim, and roofing or pose the potential of doing so.

A proper slope is 1" per foot for over 5 to 6 feet from the house. Land with a reverse slope sends excess water toward the foundation and eventually ends up in the crawlspace or basement.

In some cases, adding additional backfill to slope the land away from the house solves the problem. That may pose an additional problem at the basement windows or crawlspace vents, which would then be below grade. Window wells may be recommended to prevent any water penetration through the windows.

However if window wells are already in place, make sure they drain properly, have a good gravel base, there is no corrosion of the metal well siding, and that debris buildup is not present. Make sure that any plastic domes that cover the wells are not cracked or broken. Also, make sure metal grills that appear over the wells are not corroded or broken.

Trees too close to the house can lead to root problems with the foundation and sewer lines, messy gutters, and falling branches. If trees are too close, they should be trimmed back or removed.

Vines on the house can hold moisture and promote insect damage. English Ivy has a very strong grip and can puncture paint surfaces, grow behind siding and loosen it, and even grow under sills. Vines also keep siding from drying out. If there are vines on the house, it is a good idea to monitor the situation.

Shrubbery near the house should be trimmed back so there is about a foot clearance from the house to prevent moisture retention. Loose and mulched soil in flower beds should not touch the wood siding or cover the top of the foundation. This situation can rot the wood sill or siding. Leaves and plant debris should be raked away from the house.

## Retaining Walls

### Wooden Retaining Walls:

- Horizontal walls of wood are fairly common in residential construction. The walls are usually built

to lean back toward the high side. Wood members are connected to each other with metal spikes. Gravel fill is added behind the wall to allow water to run over. Weep holes are present or the wood joints themselves allow water to drain through the wall.

The wall is anchored to the soil through the use of tie-backs with an anchor post and a deadman cross piece. The tie-backs occur staggered between every second or third vertical pier. Vertical anchors are used in walls over 30" high. These anchors are placed about every 10' along the wall and extend about 4' into the soil.

**Precast Concrete:**

- There are new wall systems on the market made of interlocking concrete sections that also make use of tie-backs. These blocks come in various sizes and shapes with decorative stone-like surfaces.

**Poured Concrete:**

- A retaining wall made of poured concrete reinforced with steel can be like an inverted T, where the cross piece is buried below the soil to prevent the wall from tilting forward. Such a wall would have its footing below the frost line to prevent heaving.

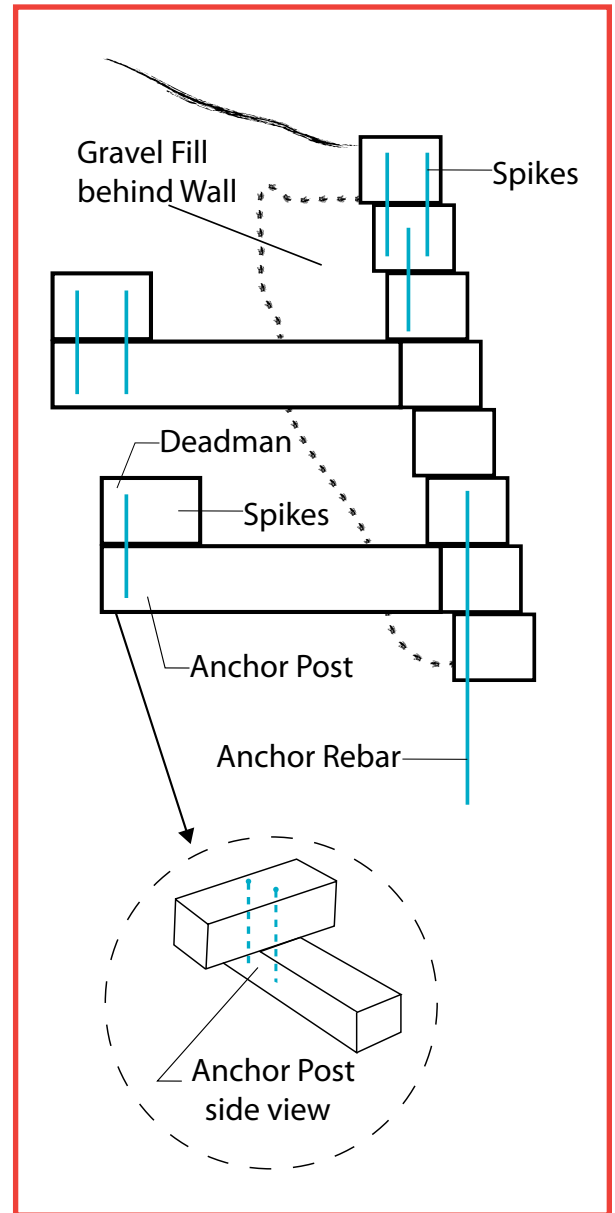
**Masonry Walls:**

- Often times masonry walls are dried laid and move out of position easily.

**Pile Walls:**

- Normally, vertical steel members are driven onto the ground until able to resist the pressure of the soil behind them. Wood pile walls can work in sandy soil or gravel.

Water is the main cause of retaining wall problems. When inspecting retaining walls, first look behind the wall for holes or depressions in the soil that can pool water. The soil should come to the top of the wall to allow water to go over the top. Water-saturated soil pushes against a wall, causing movement and bowing. Sight down the wall and use a level to determine the lean of the wall and to inspect it for bowing. Most walls are tilted back, so a plumb wall can be an indication of a developing problem.





## Basement and Crawl Space

Pay particular attention to structural items in these areas. Monitor any cracks in walls, areas of previous moisture, and flooring below plumbing fixtures. It's common to have some cracks in the masonry walls. All cracks should be monitored for further cracking and movement. If additional movement or cracking occurs, contact a licensed contractor for further evaluation and repair.

## Garage

The garage should be inspected and maintained the same as the house. Check the garage door opener occasionally to determine if the safety reverse is working. Put a board under the door, then operate the door. If it doesn't reverse, then have the door serviced. The overhead garage door needs ongoing maintenance. The inside and outside edges should be primed and painted. Follow the manufacturer's specifications. Check the rollers, track, and weather-stripping several times a year.

### SAFETY HAZARDS

- Absence of firewall.
- Passage door not fire rated.
- Exposed flammable insulation.  
Garage floor less than 4" below basement or living space.
- Heating or water heater less than 18" above garage floor.

There are two main safety concerns with the garage. One is fire resistance and the other is protecting the living area from car exhaust fumes and gasoline vapors. Any surface of the garage that abuts the house - abutting walls and garage ceiling if a room is built above it - should be fire resistant and sealed against fumes. These walls should be insulated to the same degree as the external walls of the home.

To avoid problems from gasoline fumes, passage doors from the garage to the house or basement should be at least 4" above the garage floor.

# WALK-THROUGH CHECKLIST BEFORE CLOSING

Your home inspection was most likely done when the house was occupied. Therefore, furniture, storage, and other items prevented the inspector from full access. It is highly recommended that you contact your real estate agent to arrange a walk-through (with your walk-through checklist handy) several days before closing. Bring your Purchase Agreement and copy of the Home Inspection Report so you can refer to all items that are included in your home purchase as well as what conditions were pointed out by the Inspector. Use the following walk-through checklist as a guide:

- 1. Walk around the exterior looking for any change in condition from the time the home inspection was completed, such as missing or broken storm and screen/windows, damaged siding, or other physical damage.**
- 2. Check the garage door opener operation and controls.**
- 3. View the roof from the ground to ensure that all shingles are intact.**
- 4. Check the operation of all appliances that are staying.**
- 5. Check for signs of water leaks in ceilings, basements, water heater, plumbing.**
- 6. Check for visual mold in closets, basement walls, and other areas that are readily accessible.**
- 7. Smell for gas or sewer odors.**
- 8. Walk around interior, looking behind curtains, blinds, etc., for damage to walls or windowsills.**

Basically, conduct a walk-through to verify the condition of the house is the same as when it was, when you signed under contract.

## CARBON MONOXIDE

Carbon Monoxide is produced by the incomplete combustion of the fossil fuels - gas, oil, coal, and wood used in boilers, engines burners, gas fires, water heaters, solid fuel appliances and open fires.

Dangerous amounts of CO can accumulate as a result of poor installation, poor maintenance, or failure or damage to an appliance in service, the fuel is not burned properly, or when rooms are poorly ventilated and the CO is unable to escape.

### **No Smell, Taste, or Color**

Having no smell, taste or color, in today's world of improved insulation and double glazing, it has become increasingly important to have good ventilation, maintain all appliances regularly and to have absolutely reliable detectors installed giving both a visual and audible alert, immediately, when there is a dangerous build up of CO levels.

### **EFFECTS OF CARBON MONOXIDE**

#### **Concentration of CO in the air as it relates to Inhalation Time and Toxic Development**

50 parts per million (ppm) : Safety level as specified by the Health & Safety Admin

200 ppm : Slight Headache within 2-3 hours

400 ppm : Frontal Headache within 1-2 hours  
(becoming widespread in 3 hours)

800 ppm : Dizziness, nausea, convulsions within 45 mins  
(insensible in 2 hours)

Carbon Monoxide poisoning happens by CO entering the lungs via normal breathing and CO displacing Oxygen from the bloodstream. Interruption of the normal supply of oxygen puts at risk the functions of the heart, brain, and other vital functions of the body.

The above information is for a healthy adult. Persons suffering from heart or respiratory health prob-

lems, infants and small children, unborn children, expectant mothers, and pets can be affected by CO poisoning more quickly than others in the household and may be the first to show symptoms.

The best protection is to have your heating system tuned every year and to use CO detectors in your home. For maximum protection, two detectors are recommended per household. One located in the furnace room, and the other near sleeping areas.

**FOR MORE INFORMATION, SEE:**

<http://www.carbonmonoxidekills.com/>

## **LEAD IN PAINT, DUST, AND SOIL**

Lead is a highly toxic metal that was used for many years in products found in and around our homes. Lead may cause a range of health effects, from behavioral problems and learning disabilities to seizures and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

EPA plays a major role in addressing these residential lead hazards. In 1978, there were nearly three to four million children with elevated blood lead levels in the United States. In the 1990's, that number dropped to less than a million kids, and it continues to decline. While we still have a significant challenge, EPA is very proud of how federal, state, and private sector partners have coordinated efforts with the public to better protect our children.

Since the 1980's, EPA and its federal partners have phased out lead in gasoline, reduced lead in drinking water, reduced lead in industrial air pollution, and banned or limited lead in consumer products, including residential paint. States and municipalities have set up programs to identify and treat lead poisoned children and to rehabilitate deteriorated housing. Parents, too, have greatly helped to reduce lead exposures to their children by cleaning and maintaining their homes, having their children's blood levels checked, and promoting proper nutrition. The EPA's Lead Awareness Program continues to work to protect human health and the environment against the dangers of lead by developing regulation, conducting research, and designing educational outreach efforts and materials.

**FOR MORE INFORMATION, SEE:**

<http://www2.epa.gov/lead>

**GOOD LUCK AND ENJOY YOUR HOME!**

**GOOD LUCK AND ENJOY YOUR HOME.**

Performing periodic home checkups and providing the ongoing maintenance will protect and enhance the value of your property. Remember that good maintenance records are a plus if you're planning to sell your home in the future.



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