



All-Pro Services, Inc Home Inspection Report

2707 BEAUTIFUL HOUSE ROAD, HERNDON, VA

Prepared For:

JOHN/MARY SMITH

1234 ANYWHERE COURT

ALEXANDRIA, VA 22315

123-456-7890

BUYEREMAIL@GMAIL.COM

Inspection Date:

07/01/2011

Inspector:

Gregory Patti

A.S.H.I. Certified Member

#104266

Virginia Certified Home Inspector

Va. Cert Number. 3380-000173

Radon Measurement Specialist

NRSB # SS927

Assistant:

MATTHEW GMINSKI

House Style:

COLONIAL

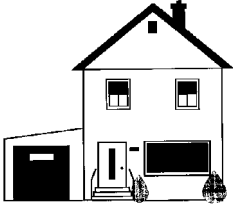
Approx. Age:

25

Occupied

Selling Agent /Company:





Report Summary

DATE: 07/01/2011
ALL-PRO SERVICES, INC.

INSPECTOR: GREGORY PATTI
(703) 385 1347

THE HOUSE IN PERSPECTIVE

This is an attractive, well built detached dwelling in generally very nice condition. As with all homes, ongoing maintenance is required and improvements to the systems of the home will be needed over time. *The improvements that are recommended in this report are not considered unusual for a home of this age and location.* Please remember that there is no such thing as a perfect home.

RECOMMENDATIONS

Below are the more significant issues noted during the inspection. Please refer to the body of this report for further details and other recommendations/observations.

- **Repair:** The roof flashing should be caulked to avoid leaks where wiring has been drawn through a plumbing vent.
- **Repair:** One or more vent hoods are blocked or obstructed by the deck. This reduces their effectiveness, and on dryer vents can produce a fire hazard. Clear the obstructions and if caused by bird or vermin nests, consider screening any except dryer vents to prevent reoccurrence.
- **Repair, Safety Issue:** The overhead garage door is damaged and needs repair. The garage door opener did not automatically reverse under resistance to closing. *There is a serious risk of injury, particularly to children, under this condition.* This should be dealt with immediately. The opener may need replacement.
- **Safety Issue: Repair:** Proper fire separation between the garage and house is recommended. The walls and ceilings of the attached garages should be well sealed where they abut the interior of a house. This reduces the potential of fire and/or toxic automobile gases entering the house. Openings should be sealed for your protection. See the stairway and overhead storage area.
- **Monitor: Repair:** The exterior walkway brickwork should be re-pointed (replacement of the mortar between the bricks) to prevent further deterioration.
- **Repair: Safety Issue:** It is recommended that an anti-siphon device (backflow preventer) be added to the hose bib(s). These protect the potability of your drinking water from contamination due to back siphonage caused by pressure fluctuations.
- **Repair:** Circuits within the main distribution panel that are doubled up (referred to as "double taps") should be separated. A separate fuse or breaker should serve each circuit.
- **Repair:** The loose exterior light fixtures should be repaired or replaced. The exterior wiring components are not all suited to this application. They should be replaced with components suitable for outdoor use. See for example the Romex connector at the rear outlet, metal junction box at rear light.
- **Repair:** The installation of a ground fault circuit interrupter (GFCI) is recommended under the deck near the rolling door. A ground fault circuit interrupter (GFCI) offers increased protection from shock or electrocution.
- **Repair:** The overcurrent protection for the upper heat pump system does not meet specifications on the manufacturer's data plate.

- **Repair:** The tub faucet in the basement bathroom is loose.
- **Repair:** The bathtub plug is missing or not working properly in the second floor hall bath. The shower diverter in this bath does not fully divert the water. The homeowner indicated that a plumber has been scheduled to remedy these problems.
- **Monitor: Repair:** The tile floor is cracked in the kitchen. This can influence the long-term performance of the floor. Repairs and/or sealants may help extend the floors life.
- **Repair:** The installation of a ground fault circuit interrupter (GFCI) is recommended in the kitchen and basement bar. A ground fault circuit interrupter (GFCI) offers increased protection from shock or electrocution.
- **Safety Issue:** The temperature of the domestic hot water is too high by today’s standards. Current guidelines call for temperatures in the 120-125 range to help avoid scalding.
- **Major Concern: Safety Issue: Repair:** An **accessible** ground fault circuit interrupter (GFCI) should be installed on the circuit for the whirlpool. A ground fault circuit interrupter offers protection from shock or electrocution.
- **Repair:** The basement room with no windows has no door handle and has damage to one of the sliding glass doors.
- **Repair:** A prong has broken off in an outlet in bedroom 3. Because of the broken prong, this outlet could not be tested.
- **Repair:** An outlet has reversed polarity (i.e. it is wired backwards) in the living room. This outlet and the circuit should be investigated and repaired as necessary.
- **Repair:** The electric range came with an anti-tilt bracket. The warning label on the oven door states that this bracket should be installed to prevent the unit from tipping toward its user. The bracket is either not installed or has been installed incorrectly, allowing the unit to tip. This can cause a dangerous condition and should be corrected.
- **Repair:** The microwave was unresponsive.
- **Repair:** The fireplace chimney should be inspected and cleaned prior to operation.

For your convenience, the following conventions have been used in this report:

- Major Concern:** Considered major due to expense or difficulty and which require repair or replacement now.
- Safety Issue:** Immediate safety concern requiring action now.
- Repair:** Comments concerning a system or component which is missing or needs action to assure proper function.
- Improve:** denotes improvements which are recommended but not required.
- Monitor:** System or component needing further investigation and/or monitoring in order to determine if repairs or improvements are necessary.

“Discretionary Improvements” are typically suggestions for improvements or upgrades, not corrections of defects.

Inspection Limitations and General Information are located at the end of the report.

Aging components:

WATER HEATER/

WEATHER CONDITIONS

The estimated outside temperature was 80 degrees F.
 Dry weather conditions prevailed at the time of the inspection.

RECENT WEATHER CONDITIONS

Weather conditions leading up to the inspection have been relatively dry.



Structure

DESCRIPTION OF STRUCTURE

Note: As it is by far the most common method used in area construction, all homes are reported to be of platform-frame design with drywall ceilings and walls unless otherwise described.

Foundation:	<ul style="list-style-type: none"> •Poured Concrete • Not visible •Basement Configuration •Floor is concrete •100% Of Foundation Was Not Visible
Columns:	<ul style="list-style-type: none"> •Steel
Beams:	<ul style="list-style-type: none"> •Steel
Floor Structure:	<ul style="list-style-type: none"> •Wood Joist
Basement Insulation:	<ul style="list-style-type: none"> •Wall •Heated Area •Not accessible / not visible

STRUCTURE OBSERVATIONS

RECOMMENDATIONS

Foundation Leakage

- **Monitor:** No evidence of moisture penetration was visible in the basement at the time of the inspection. *It should be understood that it is impossible to predict whether moisture penetration will pose a problem in the future.* The vast majority of basement leakage problems are the result of insufficient control of storm water at the surface. The ground around the house should be sloped to encourage water to flow away from the foundations. Gutters and downspouts should act to collect roof water and drain the water at least five (5) feet from the foundation, or into a functional storm sewer. Downspouts that are clogged or broken below grade level, or that discharge too close to the foundation, are the most common source of basement leakage. Please refer to the Roofing and Exterior sections of the report for more information.

In the event that basement leakage problems are experienced, lot and roof drainage improvements should be undertaken as a first step. Please beware of contractors who recommend expensive solutions. Excavation, damp-proofing and/or the installation of drainage tiles should be considered a last resort. In some cases, however, it is necessary. Your plans for using the basement may also influence the approach taken to curing any dampness that is experienced.

Positive Attributes

The construction of the home is good quality. The materials and workmanship, where visible, are good. The visible joist spans appear to be within typical construction practices. The inspection did not discover evidence of substantial structural movement.

General Comments

No major defects were observed in the accessible structural components of the house.



Roofing

DESCRIPTION OF ROOFING

Roof Covering:	<ul style="list-style-type: none"> •Asphalt Shingles •10 + years left
Roof Penetrations:	<ul style="list-style-type: none"> •Chimney •Plumbing vents •Skylights •Roof vents/fans

Roof Flashings:	•Metal /rubber • Metal step flashing
Chimneys:	•Masonry/Stone
Roof Drainage System:	•Metal •Downspouts discharge below grade •Downspouts are well extended •Skylights •Curb-Type
Roof Structure:	•Trusses •Waferboard Sheathing
Attic Insulation:	•Fiberglas or mineral wool •8"-12" average
Attic Access:	•Scuttle
Roof Ventilation:	•Ridge Vents •Soffit Vents •Power Ventilator
Method of Inspection: Roof	•Viewed with binoculars
Method of Inspection: Attic	•Viewed from within

ROOFING OBSERVATIONS

RECOMMENDATIONS

Sloped Roofing

- **Monitor:** The roofing is in good condition. We did not see evidence of active leaks or need for immediate repair.

It is recommended that the present layers of roofing materials be removed prior to re-roofing. This adds the cost of demolition and debris removal to the re-roof cost.

The south and west sides of a roof typically wear faster than the balance of the roof. If the best roof sections have less than five years of remaining life when the worst sections need replacement it is usually logical to replace all roof slopes during re-roofing.

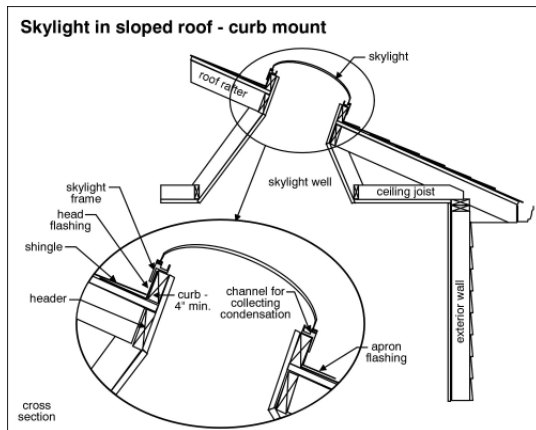
Roof flashings are the most vulnerable leakage spots on the roof, and should be replaced when re-roofing to avoid leaks in these areas.

Flashings

- **Monitor:** Roof flashing is vulnerable and should be carefully monitored for leaks.
- **Repair:** The roof flashing should be caulked to avoid leaks where wiring has been drawn through a plumbing vent.

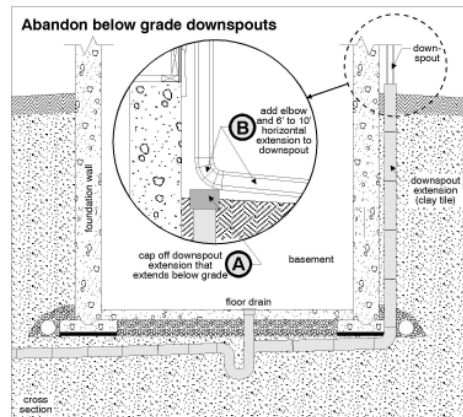


- **Monitor:** The skylight flashing should be carefully monitored. Skylight flashings are extremely vulnerable to leakage, and all skylights will leak in time. Generally, those with the highest sides are the easiest to install in a weathertight fashion.



Gutters & Downspouts

- **Monitor: Improve:** The gutters do not appear to have sufficient slope to drain properly. If they do not perform as intended, the slope should be adjusted to avoid spilling roof runoff around the building – a potential source of water entry or water damage. There does not appear to be a sufficient number of downspouts. If practical, additional downspouts should be installed to avoid spilling roof runoff around the building – a potential source of water entry or water damage.
- **Monitor:** The downspouts that discharge below grade level should be monitored. If they are ever suspected to be clogged or disconnected below grade, they should be redirected to discharge at least five (5) feet from the building. Foundation leakage adjacent to a downspout is an indication of a problem below grade.

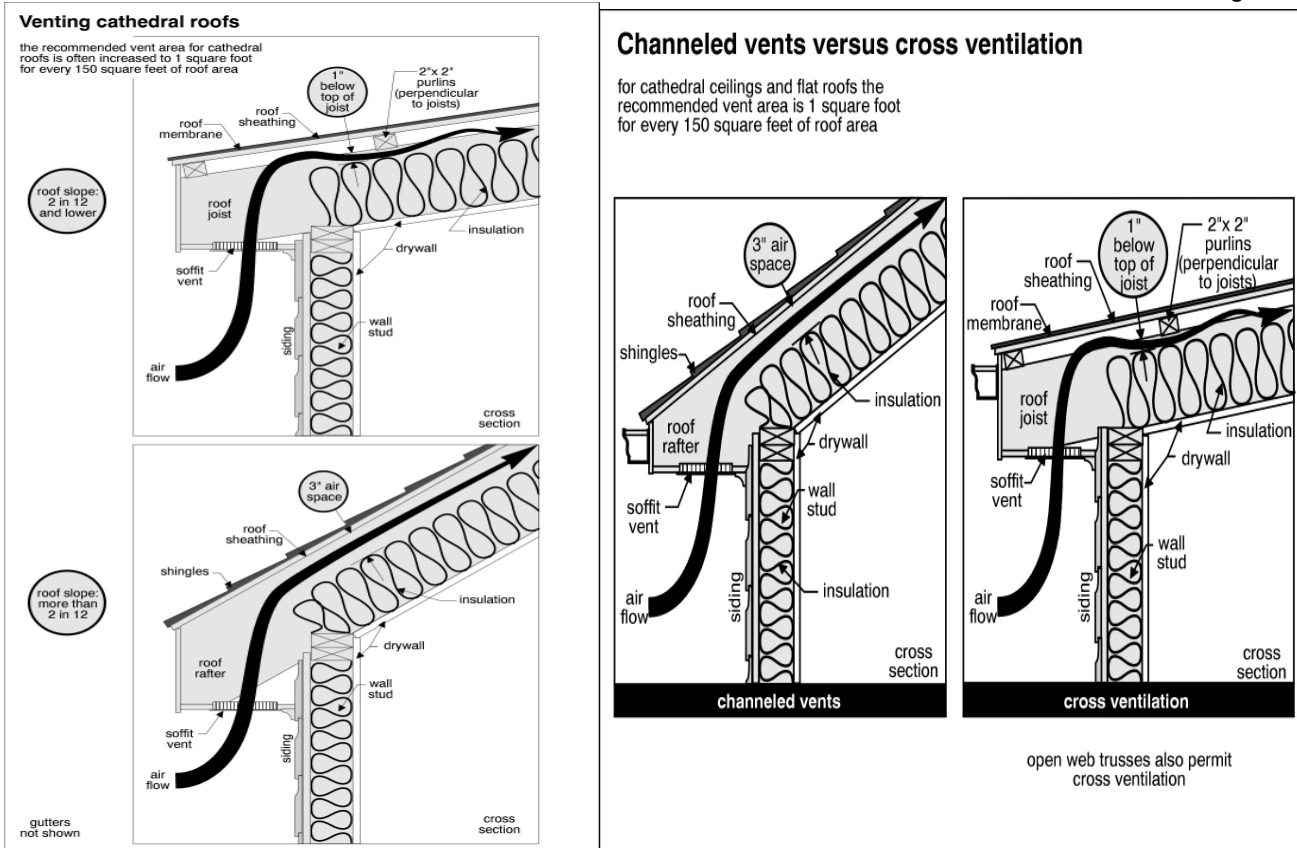


Roof

- **Monitor:** Storage is not recommended in trussed attics. Trusses are not designed to be internally load-bearing, and must be able to flex as conditions warrant. For this reason, storage of personal property in a trussed attic is not appropriate – especially if it has any weight. While Christmas tree ornaments and wrapping paper may not pose a problem, old magazines or a footlocker filled with old books can load down the bottom chord of the truss, restricting its designed ability to flex and causing damage over time. Storage also compresses insulation, reducing its thermal value.

Attic / Roof

- **Improve:** The level of ventilation should be improved. It is generally recommended that one (1) square foot of free vent area be provided for every one-hundred and fifty (150) square feet of ceiling area. **Attic fans are an effective upgrade.**
- **Monitor:** The ventilation of the sloped ceiling over the garage is questionable. Proper ventilation of cathedral roofs is rarely achieved. As a result, these areas tend to be prone to difficulty, particularly in cold climates. Ice damming on the roof and condensation within the roof space are common problems. These areas should be monitored.



Positive Attributes

The roof coverings are in generally good condition. Roof flashing details appear to be in good order. Insulation levels are typical for a home of this age and construction.

General Comments

In all, the roof coverings show evidence of normal wear and tear for a home of this age.



Exterior

DESCRIPTION OF EXTERIOR

- | | |
|---|------------------------------------|
| Wall Structure: | •Wood Frame |
| Wall Covering: | •Brick •Vinyl Siding |
| Eaves, Soffits, And Fascias: | •Vinyl •Metal |
| Window/Door Frames and Trim: | •Wood •Metal |
| Entry Driveways: | •Asphalt |
| Entry Walkways And Patios: | •Pavers •Brick |
| Porches, Decks, Steps, Railings: | •Treated Wood •Other |
| Overhead Garage Door(s): | •Metal •Automatic Opener Installed |

Surface Drainage: Foundation
Surface Drainage: Yard
Retaining Walls:

- Level Grade •Graded Away From House
- Graded Away From House
- Block

EXTERIOR OBSERVATIONS

RECOMMENDATIONS

Exterior Walls

- **Improve:** Sealants need attention at a number of spots around the house.
- **Improve:** Trees and shrubs should ideally be trimmed to remain about 1' out from the exterior of the house to reduce the abrasion which high winds can cause on siding.
- **Repair:** One or more vent hoods are blocked or obstructed by the deck. This reduces their effectiveness, and on dryer vents can produce a fire hazard. Clear the obstructions and if caused by bird or vermin nests, consider screening any except dryer vents to prevent reoccurrence.



Exterior Eaves

- **Improve:** Tree branches should be trimmed away from the house.



Windows/Doors/Trim

- **Improve:** Caulking generally needs routine maintenance and touchup.

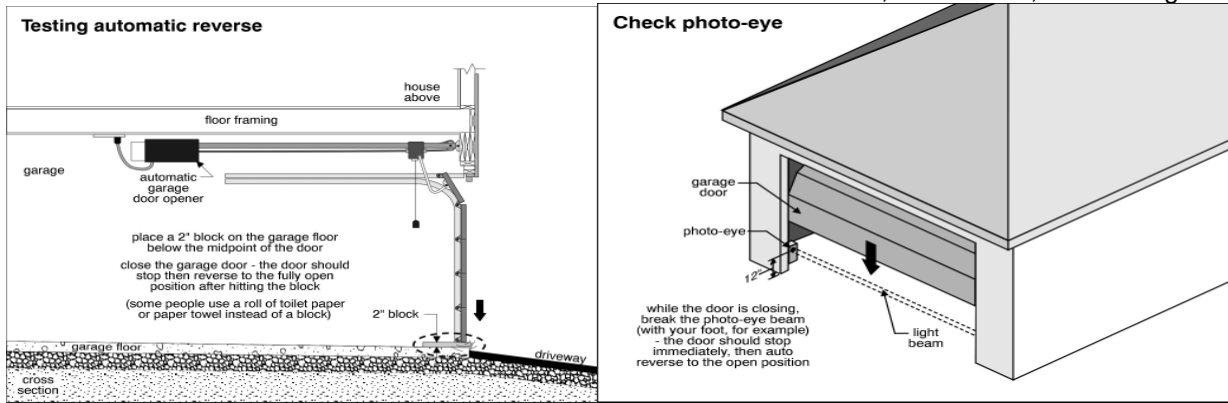


Garage

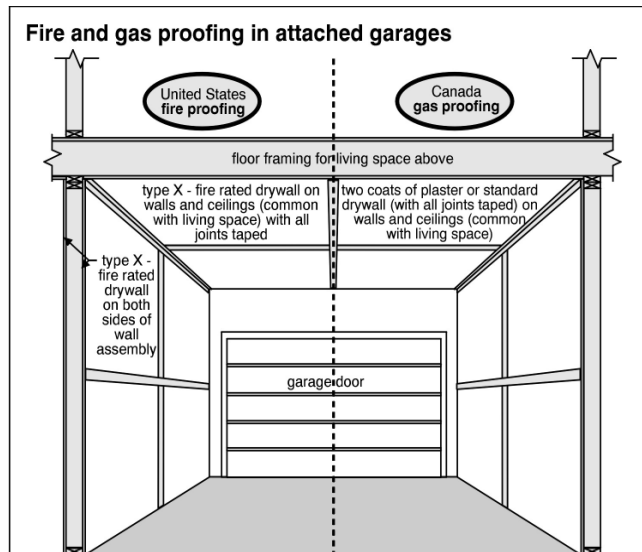
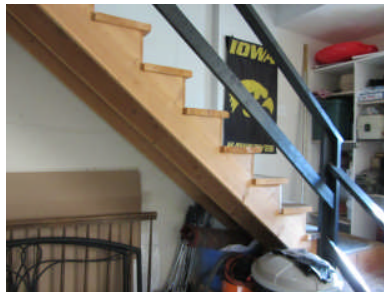


- **Repair, Safety Issue:** The overhead garage door is damaged and needs repair. The garage door opener did not automatically reverse under resistance to closing. ***There is a serious risk of injury, particularly to children, under this condition.*** This should be dealt with immediately. The opener may need replacement.

Improvement may be as simple as adjusting the sensitivity control on the opener. If only equipped with a photocell sensor, consider making sure that the sensor is at bumper height to help avoid damage.



- Safety Issue: Repair:** Proper fire separation between the garage and house is recommended. The walls and ceilings of the attached garages should be well sealed where they abut the interior of a house. This reduces the potential of fire and/or toxic automobile gases entering the house. Openings should be sealed for your protection. See the stairway and overhead storage area.



Lot Drainage

- Improve:** The grading should be improved to promote the flow of storm water away from the house. This can often be accomplished by the addition of top soil. The ground should slope away from the house at a rate of one inch per foot for at least the first ten feet. At least eight (8) inches of clearance should be maintained between soil level and the bottom of exterior wall siding.

Walkway

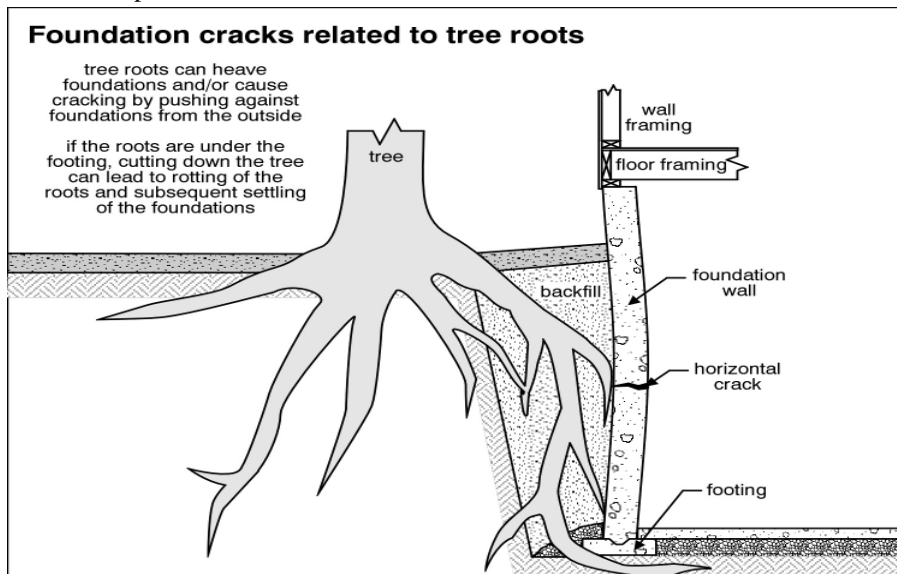
- Monitor: Repair:** The exterior walkway brickwork should be re-pointed (replacement of the mortar between the bricks) to prevent further deterioration.

Landscaping

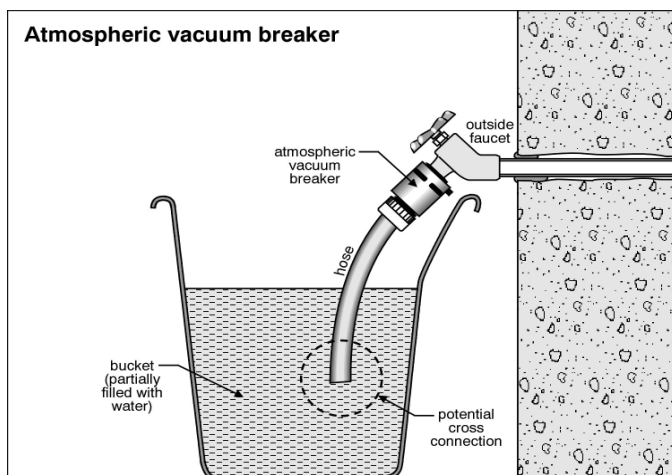
- **Improve:** Tree branches should be trimmed away from the house to avoid damage to the building.



- **Monitor:** The proximity of a tree relative to the foundation or other structure may influence the integrity of the foundation, disrupt drainage pipes, or cause mechanical damage to the exterior of the house. Generally, root spread is comparable to branch spread. Monitor the situation and consider removal of the tree.



- **Repair: Safety Issue:** It is recommended that an anti-siphon device (backflow preventer) be added to the hose bib(s). These protect the potability of your drinking water from contamination due to back siphonage caused by pressure fluctuations.



- **Monitor: Improve:** The water pipe under the deck will be vulnerable to freeze damage as discussed.

Discretionary Improvements

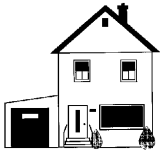
The application of a driveway sealant would offer protection from moisture and sunlight. This may prolong the driveway life.

Positive Attributes

The exterior siding that has been installed on the house is relatively low maintenance. Window frames are clad, for the most part, with a low maintenance material. The aluminum soffits and fascia are a low-maintenance feature of the exterior of the home. There is no significant wood/soil contact around the perimeter of the house, thereby reducing the risk of insect infestation or rot. The lot drainage was good, conducting surface water away from the building. The decking appears to be constructed from pressure treated wood and resin. The driveway and walkways are in good condition.

General Comments

The exterior of the home is generally in good condition.



Electrical

DESCRIPTION OF ELECTRICAL

Size of Electrical Service:	•120/240 Volt Main Service Size: 200 Amp
Service Drop:	•Underground •Aluminum
Service Grounding:	•Ground Connection Not Visible
Main Disconnect:	•Main Service Rating 200 Amps •Breakers •Located: At panel
Service Panel & Overcurrent Protection:	•Breakers •Located: basement
Distribution Wiring:	•Copper •Aluminum—Large circuits •Aluminum—Large circuits • Non-Metallic Cable "Romex"
Switches & Receptacles:	•Grounded(3 prong)
Ground Fault Circuit Interrupters:	•Exterior •Garage

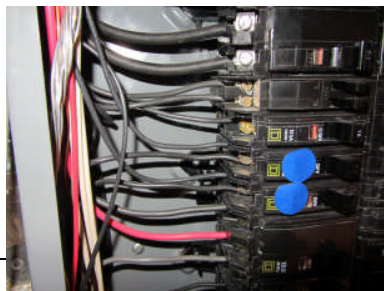
ELECTRICAL OBSERVATIONS

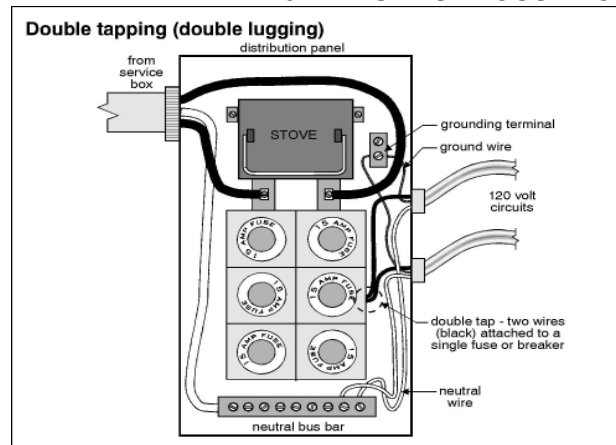
RECOMMENDATIONS

- **Important Safety Notice:** *Electrical issues noted in this report should be considered important safety items because they present risk of fire or shock. These items should receive high priority for action.*

Main Panel

- **Monitor: Improve:** The system size is smaller than is ideal for a dual zone all electric house.
- **Repair:** Circuits within the main distribution panel that are doubled up (referred to as “double taps”) should be separated. A separate fuse or breaker should serve each circuit.





Lights

- **Repair:** The loose exterior light fixtures should be repaired or replaced. The exterior wiring components are not all suited to this application. They should be replaced with components suitable for outdoor use. See for example the Romex connector at the rear outlet, metal junction box at rear light.



Outlets

- **Repair:** The installation of a ground fault circuit interrupter (GFCI) is recommended under the deck near the rolling door. A ground fault circuit interrupter (GFCI) offers increased protection from shock or electrocution.
Ground Fault Circuit Interrupters (GFCI's) are a relatively new device usually used to increase electrical protection in the vicinity of water. They detect minute differences between the current flowing in on the "hot" wire and the current flowing out on the neutral wire. Any such differences mean that current is escaping to ground, causing a risk of shock. The device will break the circuit in fractions of a second when this occurs – for instance, when your hair dryer falls into the toilet or the toaster falls into the dishwasher. Current practices call for this protection outdoors, in garages, in bathrooms (especially with whirlpools), in kitchens within 6' of the sink, and near bar sinks – in short, anywhere there is reason to expect proximity to water. They can also be used to permit safe replacement of 2 prong outlets with 3 prong outlets under proper conditions. GFCI's come in a circuit breaker form that will protect an entire circuit, or in a receptacle form which will protect that outlet and up to 9 or 10 other outlets further down the circuit. Trip the reset buttons on both types of device monthly to verify that the device can mechanically operate.

Discretionary Improvements

The installation of ground fault circuit interrupter (GFCI) devices is advisable on exterior, garage, bathroom and some kitchen outlets. Any whirlpool or swimming pool equipment should also be fitted with GFCI's. A ground fault circuit interrupter (GFCI) offers protection from shock or electrocution.

Positive Attributes

The electrical panel is well arranged and all fuses/breakers are properly sized. Generally speaking, the electrical system is in good order. All outlets and light fixtures that were tested operated satisfactorily. The distribution of electricity within the home is good. Ground fault circuit interrupter (GFCI) devices have been provided in some areas of the home. These devices are extremely valuable, as they offer an extra level of shock protection. All GFCI's that were tested responded properly. Dedicated 220 volt circuits have been provided for all 220 volt appliances within the home.

General Comments

Inspection of the electrical system revealed the need for typical, minor repairs. Although these are not costly to repair, they should be high priority for safety reasons. *Unsafe electrical conditions represent a shock hazard.* A licensed electrician should be consulted to undertake the repairs recommended above.



Cooling / Heat Pumps

DESCRIPTION OF COOLING / HEAT PUMPS

Make: (upper unit)	•BDP/Bryant/Carrier
Size:	•2 ton-24K BTU •Approximate age: •4 yrs
Energy Source:	•Electricity
Central System Type:	•Air Source Heat Pump System with Auxiliary Heat
Other Components:	•Outside disconnect--fused
Temperatures:	• 70 at return. • 52 Supply—Measured at register • 104 at supply(Emerg)—Measured at register
Max. Fuse:	• 25 AMP.
Fuse in Place:	• 30 AMP.
Make: (lower unit)	•BDP/Bryant/Carrier
Size:	•3 ton-36K BTU •Approximate age: •4 yrs
Energy Source:	•Electricity
Central System Type:	•Air Source Heat Pump System with Auxiliary Heat
Other Components:	•Outside disconnect--fused
Temperatures:	• 70 at return. • 50 Supply—Measured at plenum • 110 at supply(Emerg)—Measured at plenum
Max. Fuse:	• 35 AMP.
Fuse in Place:	• 35 AMP.

COOLING / HEAT PUMPS OBSERVATIONS

RECOMMENDATIONS

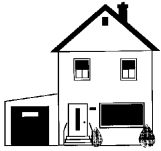
- **Improve:** The heat pumps do not have adequate ground clearance for snow.

Heat Pump

- **Repair:** The overcurrent protection for the upper heat pump system does not meet specifications on the manufacturer's data plate.

Positive Attributes

The capacity and configuration of the system should be sufficient for the home. This is a relatively new system that should have years of useful life remaining. Regular maintenance will, of course, be necessary. The heat pump serves to air-condition the home and provide heat during cooler weather conditions. Upon testing in the air conditioning mode, a normal temperature drop across the evaporator coil was observed. This suggests that the system is operating properly. The system responded properly to operating controls.



Plumbing

DESCRIPTION OF PLUMBING

Water Supply Source:	• Appears Public Water Supply
Service Pipe to House:	• Not visible
Main Water Valve Location:	•Front Wall of Basement •Pressure Regulator on Main Line
Interior Supply Piping:	•Copper
Waste System:	•Appears Public Sewer System
Drain, Waste, & Vent Piping:	•Plastic
Water Heater:	•Approximate Capacity (in gallons): 50 •Manufacturer: Rheem •Approximate age: 18 •Electric
Laundry Facility:	•240 Volt Circuit for Dryer •120 Volt Circuit for Washer •Hot and Cold Water Supply for Washer •Waste Standpipe for Washer

PLUMBING OBSERVATIONS

RECOMMENDATIONS

Water Heater

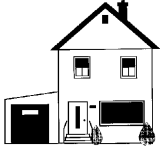
- **Safety Issue:** The temperature of the domestic hot water is too high by today's standards. Current guidelines call for temperatures in the 120-125 range to help avoid scalding.
- **Monitor:** The water heater is an old unit that may be approaching the end of its useful life. It would be wise to budget for a new unit. One cannot predict with certainty when replacement will become necessary.

Fixtures

- **Repair:** The tub faucet in the basement bathroom is loose.
- **Repair:** The bathtub plug is missing or not working properly in the second floor hall bath. The shower diverter in this bath does not fully divert the water. The homeowner indicated that a plumber has been scheduled to remedy these problems.
- **Major Concern: Safety Issue: Repair:** An **accessible** ground fault circuit interrupter (GFCI) should be installed on the circuit for the whirlpool. A ground fault circuit interrupter offers protection from shock or electrocution.

Positive Attributes

The plumbing system is in generally good condition. The water pressure supplied to the fixtures is reasonably good. A typical drop in flow was experienced when two fixtures were operated simultaneously.



Interior

DESCRIPTION OF INTERIOR

NOTE: For ease of identification, bedrooms are numbered clockwise from the master bedroom—BR1, BR2, etc.

Wall and Ceiling Materials:	•Drywall/Plaster
Floor Surfaces:	•Carpet •Tile •Vinyl/Resilient •Wood •Concrete
Window Type(s) & Glazing:	•Casement •Double/Single Hung •Fixed Pane •Double Glazed
Exterior Doors:	•Metal or Composite •Glass lights or sidelights •Single cylinder deadbolt lock •Outside Light •Hinged •French Doors •Storm Door(s)
Interior Doors:	•Wood •Panel •Bifold •Sliding Glass
Receptacles:	•Grounded(3 prong)
Ground Fault Interrupter Protection	•Bathroom(s)
Ground Fault Circuit Resets:	•Bathroom(s)
Exhaust Fan/vent Locations:	•Bathroom •Kitchen •Dryer

INTERIOR OBSERVATIONS

RECOMMENDATIONS

Floors

- **Monitor:** The tile floor is cracked in the kitchen. This can influence the long-term performance of the floor. Repairs and/or sealants may help extend the floors life.
- **Monitor:** The installation of the vinyl flooring is not well executed in the basement closet.

Windows

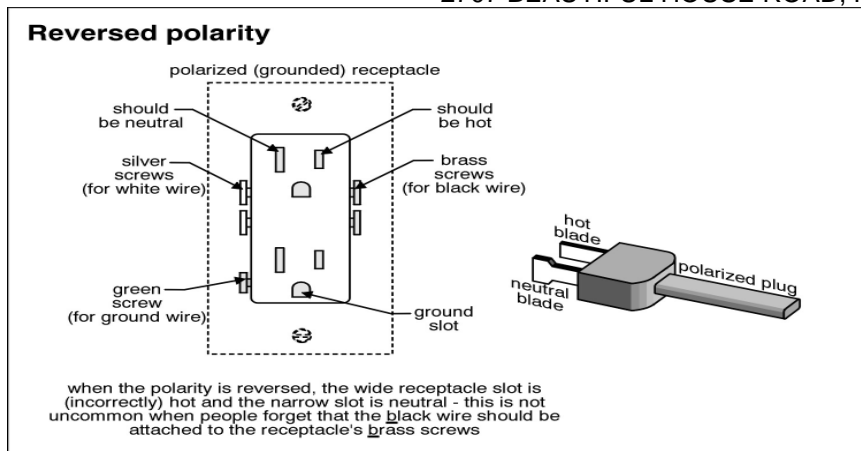
- **Improve:** Window hardware is damaged in the second floor hall bathroom. Damaged screens were noted on windows in the powder room.

Interior Doors

- **Improve:** Damaged or non-functional door hardware should be improved, adjusted or repaired as necessary in the dining room. Doors should be trimmed or adjusted as necessary for proper undercut in the dining room. This can dramatically improve the movement of heated and cooled air through the room when closed.
- **Repair:** The basement room with no windows has no door handle and has damage to one of the sliding glass doors.

Outlets

- **Repair:** A prong has broken off in an outlet in bedroom 3. Because of the broken prong, this outlet could not be tested.
- **Repair:** An outlet has reversed polarity (i.e. it is wired backwards) in the living room. This outlet and the circuit should be investigated and repaired as necessary.



- **Repair:** The installation of a ground fault circuit interrupter (GFCI) is recommended in the kitchen and basement bar. A ground fault circuit interrupter (GFCI) offers increased protection from shock or electrocution.

Ground Fault Circuit Interrupters (GFCI's) are a relatively new device usually used to increase electrical protection in the vicinity of water. They detect minute differences between the current flowing in on the "hot" wire and the current flowing out on the neutral wire. Any such differences mean that current is escaping to ground, causing a risk of shock. The device will break the circuit in fractions of a second when this occurs – for instance, when your hair dryer falls into the toilet or the toaster falls into the dishwasher. Current practices call for this protection outdoors, in garages, in bathrooms (especially with whirlpools), in kitchens within 6' of the sink, and near bar sinks – in short, anywhere there is reason to expect proximity to water. They can also be used to permit safe replacement of 2 prong outlets with 3 prong outlets under proper conditions. GFCI's come in a circuit breaker form that will protect an entire circuit, or in a receptacle form which will protect that outlet and up to 9 or 10 other outlets further down the circuit. Trip the reset buttons on both types of device monthly to verify that the device can mechanically operate.

Discretionary Improvements

Install new exterior lock sets upon taking possession of the home.

- **Monitor:** Carbon monoxide is a colorless, odorless gas that can result from a faulty fuel burning furnace, range, water heater, space heater or wood stove. Proper maintenance of these appliances is the best way to reduce the risk of carbon monoxide poisoning. For more information, consult the Consumer Product Safety Commission at 1-800-638-2772 (C.P.S.C.) for further guidance. **It would be wise to install of carbon monoxide detectors within the home.**

Carbon monoxide detectors are strongly recommended for all systems which burn a fossil fuel for heat production.

Environmental Issues

- **Monitor:** Radon gas is a naturally occurring gas that is invisible, odorless and tasteless. A danger exists when the gas percolates through the ground and enters a tightly enclosed structure (such as a home). Long term exposure to high levels of radon gas can cause cancer. ***The Environmental Protection Agency (E.P.A.) and the State of Virginia state that a radon reading of more than 4.0 picocuries per liter of air represents a health hazard.*** A radon evaluation is beyond the scope of this inspection (unless specifically requested). Elevated radon levels are common in this area. Testing is recommended and is available through All-Pro Services, Inc. at additional cost

General Condition of Interior Finishes

On the whole, the interior finishes of the home are in above average condition. Typical minor flaws were observed in some areas.

General Condition of Windows and Doors

The majority of the doors and windows are good quality. The windows have, for the most part, been well-maintained.

General Condition of Floors

The floors of the home are relatively level and walls are relatively plumb.



Appliances

DESCRIPTION OF APPLIANCES

Appliances Tested:

- Electric Range •Built-in Electric Oven •Microwave Oven •Dishwasher
- Waste Disposer •Refrigerator •Clothes Washer •Clothes Dryer

Other Components Tested:

- Kitchen Exhaust Hood Smoke detector

APPLIANCES OBSERVATIONS

RECOMMENDATIONS

Electric Range

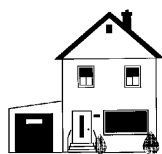
- **Monitor:** The electric range was operational, but the inspector did not allow it to heat to 350 degrees because smoke was coming out of the oven portion of the appliance. It smelled like plastic and may be residual from when the appliance was produced.
- **Repair:** The electric range came with an anti-tilt bracket. The warning label on the oven door states that this bracket should be installed to prevent the unit from tipping toward its user. The bracket is either not installed or has been installed incorrectly, allowing the unit to tip. This can cause a dangerous condition and should be corrected.

Microwave

- **Repair:** The microwave was unresponsive.

Positive Attributes

Most of the major appliances in the home are newer. The appliances are to be in generally good condition. Most appliances that were tested responded satisfactorily. The kitchen and laundry facilities are well organized. The kitchen cabinetry is above average quality. The fixtures employed in the kitchen are high quality.



Fireplaces / Wood Stoves

DESCRIPTION OF FIREPLACES / WOOD STOVES

Fireplaces:

- Masonry Firebox

Vents, Flues, Chimneys:

- Masonry Chimney-Lined

FIREPLACES / WOOD STOVES OBSERVATIONS

RECOMMENDATIONS

Fireplaces

- **Repair:** The fireplace chimney should be inspected and cleaned prior to operation.

NOTE TO REALTORS: THIS COMPLETES YOUR COPY OF THIS REPORT. THE REMAINING PAGES CONTAIN THE "INSPECTION LIMITATIONS" AND "GENERAL COMMENTS" SECTIONS, WHICH ARE INSTRUCTIONAL AND ARE GIVEN ONLY TO THE BUYER.



Inspection Limitations

THE SCOPE OF THE INSPECTION

All components designated for inspection in the ASHI® Standards of Practice are inspected, except as may be noted within this report.

This inspection is visual only. A representative sample of building components is viewed in areas that are accessible at the time of the inspection. No destructive testing or dismantling of building components is performed.

It is the goal of the inspection to make the client a more informed purchaser. Not all improvements will be identified during this inspection. Unexpected repairs should still be anticipated. The inspection should not be considered a guarantee or warranty of any kind.

Please refer to the agreement for a full explanation of the scope of the inspection.

LIMITATIONS OF EXTERIOR INSPECTION

Inspection of the exterior is limited by (but not restricted to) the following conditions:

- A representative sample of exterior components are inspected—not all components at all locations.
- The inspection does not include an assessment of geological, geotechnical, or hydrological conditions, or environmental hazards.
- Screening, shutters, awnings, or similar seasonal accessories, fences, recreational facilities, outbuildings (except garages), seawalls, break-walls, docks, erosion control and earth stabilization measures are not inspected unless specifically agreed-upon and documented in this report.

LIMITATIONS OF ROOFING INSPECTION

Inspection of the roofing system is limited by (but not restricted to) the following conditions:

- The entire underside of the roof sheathing is not inspected for evidence of leaks.
- Interior finishes may disguise evidence of prior leaks.
- Estimates of remaining roof life are approximations only and do not preclude the possibility of leakage. Leakage can develop at any time and may depend on rain intensity, wind direction, ice build up, and other factors.
- Antennae, chimney/flue interiors which are not readily accessible are not inspected and could require repair.
- Roof inspection may be limited by access, condition, special requirements of the roofing material, weather, or other safety concerns.
- Insulation/ventilation type and levels in concealed areas are not inspected. Insulation and vapor barriers are not disturbed and no destructive tests (such as cutting openings in walls to look for insulation) are performed. Any estimates of insulation R values or depths are rough average values.
- Potentially hazardous materials such as Asbestos and Urea Formaldehyde Foam Insulation (UFFI) cannot be positively identified without a detailed inspection and laboratory analysis. This is beyond the scope of the inspection.

LIMITATIONS OF STRUCTURE INSPECTION

Inspection of structural components is limited by (but not restricted to) the following conditions:

- Structural components concealed behind finished surfaces could not be inspected.
- Only a representative sampling of visible structural components are inspected.
- Unless vacant at the time of the inspection, furniture and/or storage restricted access to some structural components.
- Engineering or architectural services such as calculation of structural capacities, adequacy, or integrity are not part of a home inspection.

- Exterior wall insulation type and levels are not evaluated. Any estimates of insulation R values or depths are rough average values.
- Deck attachment to the house is largely concealed , often cannot be properly evaluated without causing damage and is not evaluated here.

LIMITATIONS OF ELECTRICAL INSPECTION

Inspection of the electrical system is limited by (but not restricted to) the following conditions:

- Electrical components concealed behind finished surfaces are not inspected.
- Only a representative sampling of outlets and light fixtures are tested.
- Unless vacant at the time of the inspection, furniture and/or storage restricted access to some electrical components which may not be inspected.
- The inspection does not include remote control devices, alarm systems and components, low voltage wiring, systems, and components, or ancillary wiring, systems, and other components (such as TV cable, telephone or computer wiring) that are not part of the primary electrical power distribution system.

LIMITATIONS OF HEATING INSPECTION

The inspection of the heating system is general and is not technically exhaustive. Inspection of the heating system was limited by (but not restricted to) the following conditions:

- Assessing the adequacy of heat supply or distribution systems requires analysis such as heat loss calculations, which are technical functions beyond our scope.
- The interior of flues or chimneys which are not readily accessible are not inspected.
- The furnace heat exchanger, humidifier, or dehumidifier, and electronic air filters are not inspected.
- Solar space heating equipment/systems are not inspected.

LIMITATIONS OF COOLING / HEAT PUMPS INSPECTION

Air conditioning and heat pump systems, like most mechanical components, can fail at any time --often without warning . . Inspection of these systems was limited by (but not restricted to) the following conditions:

- Window/ wall mounted air conditioning units are not inspected.
- Assessing the adequacy of cooling supply or distribution systems requires analysis such as heat loss calculations, which are technical functions beyond our scope.
- An analysis of indoor air quality is not part of our inspection unless explicitly contracted-for and discussed in this or a separate report.

LIMITATIONS OF PLUMBING INSPECTION

Inspection of the plumbing system was limited by (but not restricted to) the following conditions:

- Portions of the plumbing system concealed by finishes and/or storage (below sinks, etc.), below the structure, or beneath the ground are not inspected.
- The effect of lead content in solder or supply components is beyond the scope of the inspection. Water quality is only tested if explicitly contracted-for and discussed in a separate report..
- Clothes washing machine connections are not inspected.
- Interiors of flues or chimneys are not inspected.
- Water conditioning systems, solar water heaters, fire and lawn sprinkler systems, and private waste disposal systems are not inspected.

LIMITATIONS OF INTERIOR INSPECTION

Assessing the quality and condition of interior s is highly subjective. Issues such as cleanliness, cosmetic flaws, quality of materials, architectural appeal and color are beyond the scope of this inspection. Comments will be general except where functional concerns exist. No comment is offered on the extent of cosmetic repairs that may be needed after removal of existing wall hangings and furniture. Inspection of the interior is limited by (but not restricted to) the following conditions:

- Unless vacant at the time of the inspection, furniture, storage, appliances and/or wall hangings restricted the inspection of the interior, are not moved to permit inspection, and may block defects.

- Carpeting, window treatments, , portable appliances, recreational facilities, paint, wallpaper, and other finish treatments are not inspected.

LIMITATIONS OF APPLIANCES INSPECTION

Inspection of the appliances is limited by (but not restricted to) the following conditions:

- Thermostats, timers and other specialized features and controls are not tested.
- The temperature calibration, functionality of timers, effectiveness, efficiency and overall performance of appliances is outside the scope of this inspection.
- Central vacuum systems are not inspected if attachments are required for operation.

LIMITATIONS OF FIREPLACES / WOOD STOVES INSPECTION

Inspection of the fireplace(s) and /or wood stove(s) is limited by (but not restricted to) the following conditions:

- The interiors of flues or chimneys are not inspected.
- Firescreens, fireplace doors, appliance gaskets and seals, automatic fuel feed devices, mantles and fireplace surrounds, combustion make-up air devices, and heat distribution assists (gravity or fan-assisted) are not inspected.
- The inspection does not involve igniting or extinguishing fires nor the determination of draft.
- Fireplace inserts, stoves, or firebox contents are not moved.

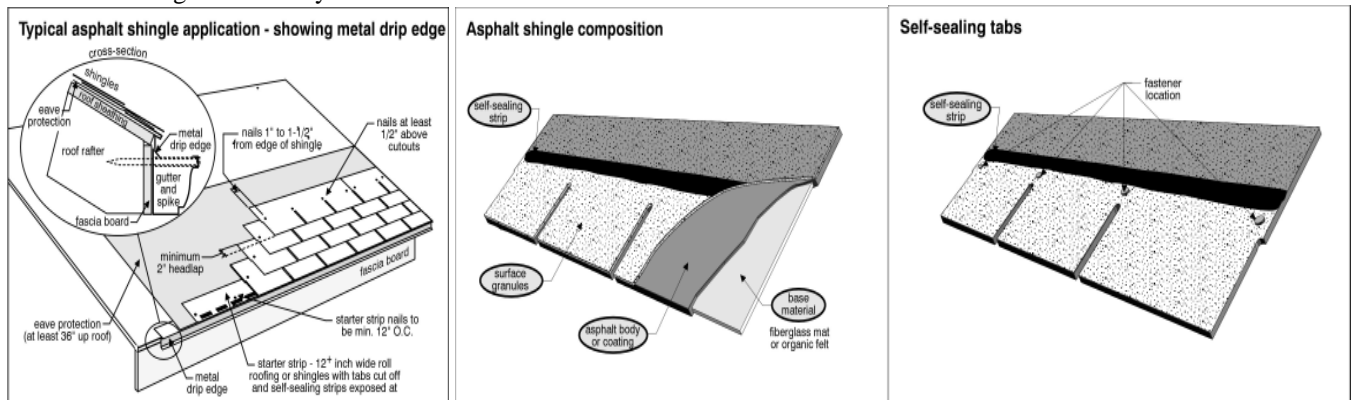
General Information

These entries were chosen because some or all of the information included relates specifically to this property. Read this material at your leisure, but do read it. It will help you understand and evaluate issues discussed during your inspection.

ASPHALT SHINGLES

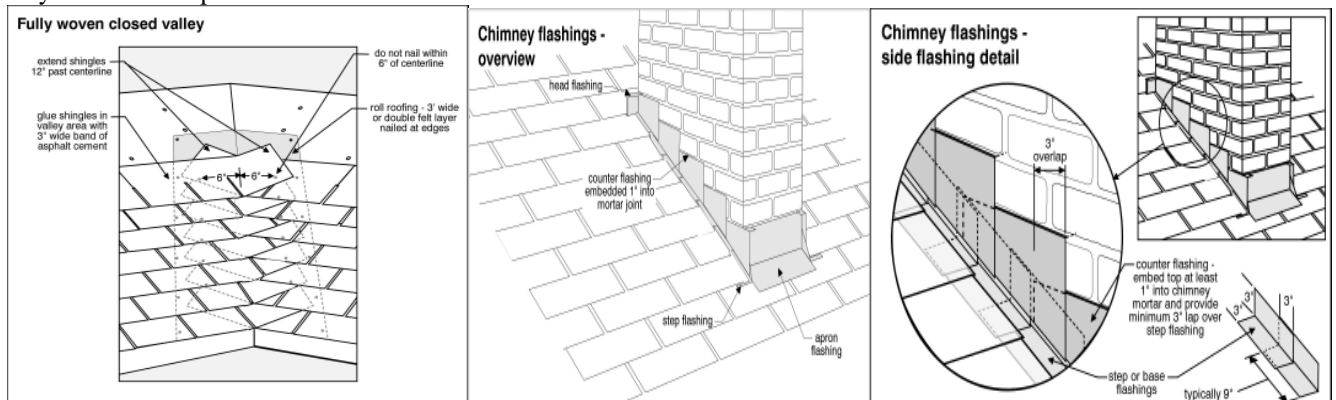
Asphalt shingle roofs normally last 15-30 years for standard grade shingles, and up to 40 year warranties are provided for top end architectural shingles. Maximizing life also depends on the quality of the workmanship and maintenance. When the roof has lived its life, another layer can be added to restore the roof. A second layer roof generally provides between $\frac{1}{2}$ and $\frac{2}{3}$ the life of a one layer roof (due largely to greater heat retention), and at the end of its life, the roof must be stripped of all shingles before reroofing. Triple layers are typically not permitted.

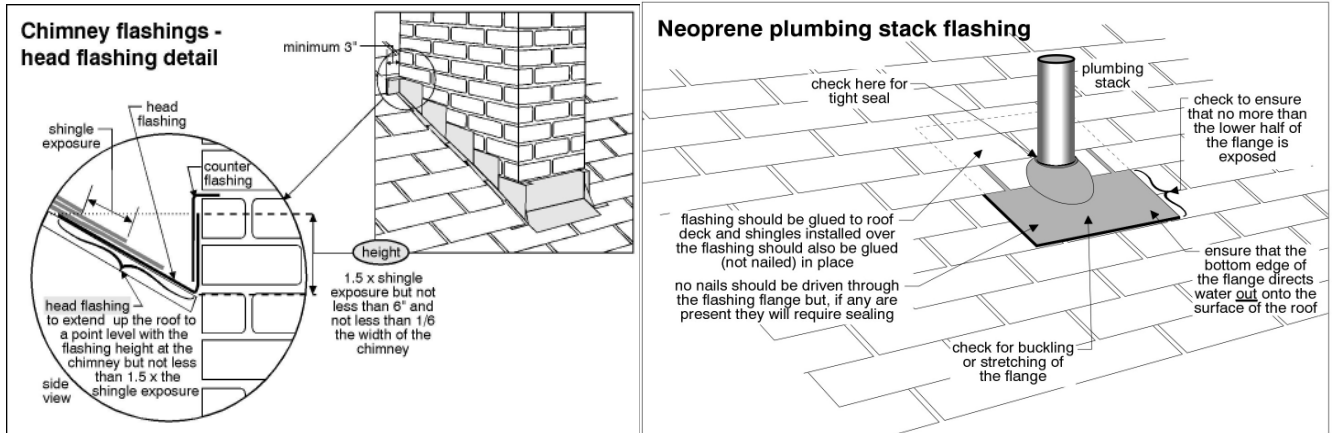
Shingles can only repel water if properly installed and in good condition. Any irregularities such as torn or damaged tabs, abrasion or erosion of the mineral surface, raised fasteners (often appearing as if something is stuck under the shingle), or other flaws can allow water to pass through or around the shingle and into the house. Proper and prompt repairs can lengthen roof life significantly. Patches, sealant or caulks can be signs that some leaks have already occurred. The lighter the shingles in color, the less heat they will absorb from the sun. This usually translates into less thermal stress and a longer life for the roof. Use the lightest colors you are comfortable with.



FLASHING

Any time the plane of the roof is broken, flashing is used to avoid leaks where dissimilar items meet. Flashing can be metal such as aluminum or copper, or can be made of plastics such as neoprene. These can deteriorate over time and can allow leaks that may be detectable in the attic or at ceilings. Review them as part of your routine maintenance, and consider having all flashing replaced when reroofing. Even if the flashing outlasts the first roof, it will probably not outlast a second, and may contribute to problems with the new roof.



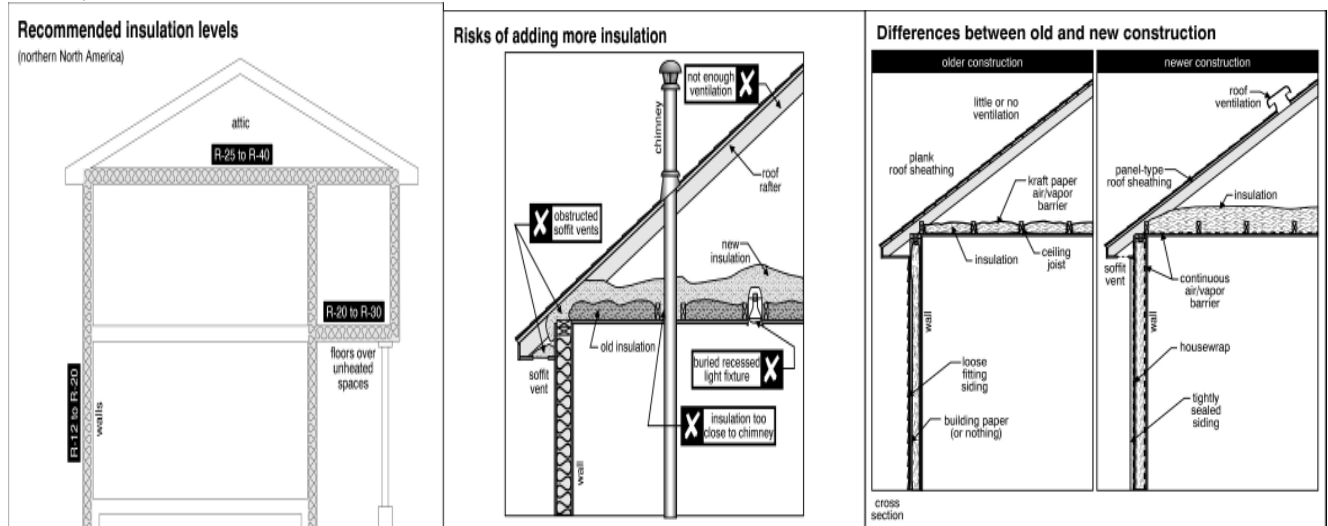


MASONRY CHIMNEYS

Watch for signs of deterioration in the brick and mortar, especially above the roofline. Spalling brick (surface deterioration of the masonry) is quite common at the top of the chimney, and this frequently is accelerated by cracks in the chimney crown (the concrete cap pad on top of the chimney). If these are well-caulked and sealed, moisture penetration resulting in freeze damage may be reduced, and repairs postponed if not avoided completely. Severe spalling can ultimately make rebuilding the top of the chimney necessary.

ATTIC INSULATION

Most attics are insulated to some degree with a variety of materials and methods. Generally, unless already insulated to R-30 (equivalent to approximately 10-12” of fiberglass), consider adding more. Many attics have a paper vapor or moisture barrier installed against the attic floor (the top of the ceiling below) to help hold out rising moisture from the inhabited areas. If there is a vapor barrier, insulation being added should not have one – condensation can develop between the two barriers. If there are already two in place, the top one should be cut or sliced every couple of feet to help prevent condensation from developing. Avoid allowing insulation to pack in the eaves to help reduce ice damming, which can cause roof leaks from snow runoff that becomes trapped (There is a good description of this phenomenon on page 39 in your Home Repair Manual).



MASONRY FOUNDATIONS

Most foundations are masonry – usually of block or poured concrete. Since the foundation is a critical structural element, cracks or fractures of the masonry are often cause for alarm in a purchaser. Many kinds of cracks are quite common and are generally considered relatively harmless. Others are more serious and call for further attention.

A house is built with a huge amount of moisture present in the framing lumber and in the masonry. Some of this moisture is natural to the material and some soaks in during rains on the job site and from other sources. As soon as the home is completed, and the inside air is heated and dry, this moisture begins to leave the structure. A house can lose hundreds of

pounds of water weight in the first year after construction. Since all this water has mass, when it leaves the materials shrink, creating stresses in the structure. In masonry, this can manifest itself as shrinkage cracks which are usually vertical in concrete, and can be vertical or stepped cracks in a block wall. They usually stop as soon as the shrinkage stress is relieved, and as long as they are small and not actively growing, they are not cause for alarm. Settlement cracks can also be of long standing. As backfill and other soils disturbed or put under load in the construction process settle and pack at walls and footings, stresses are created in the masonry. Cracks can occur which relieve this stress and allow the structure to achieve equilibrium, and then stop growing. Here too, as long as the cracks are small and are not dynamic, there may not be any cause for concern. Likewise, many cracks at the corners of doors and windows are due to differential expansion and contraction and may not be signs of more significant problems.

Long horizontal cracks, cracks which appear to have been repaired and which have recurred, cracks which are large or are growing, or walls which are bulging inward or which show displacement are of more concern. If water pressure against the outside of the wall is the culprit (as is frequently the case), it can often be relieved by some of the water management suggestions on the EXTERIOR and ROOFING pages of this report. Most water problems with the foundation come from either mismanaged roof runoff or ground water runoff, and simple techniques can be quite effective.

SIDING (ALUMINUM OR VINYL)

There are pros and cons with all materials. Vinyl can be damaged by excessive heat (such as from a BBQ too close to the house) and can become brittle in the extreme cold. Aluminum is more prone to “chalking” of the finish, and if struck it can be permanently dented. Both materials expand and contract in heat and cold, and this sometimes causes popping sounds if the siding is too tightly fastened to the house. This is usually harmless. All cut edges (especially where wire or tubing pass through the siding) should be well caulked or sealed to help prevent moisture or insects from getting into the house. It also helps to protect the wire or tube from the cut edges of the siding.

EXTERIOR WOODWORK

Inspect caulking spring and fall, and touch up whenever needed. Cracks can allow moisture or insects to get in. Be especially thorough at the ends of boards and wherever dissimilar materials meet.

Watch especially for signs of softness in the lower corners of window and door framing, (especially bay windows). Small pockets can be repaired using special epoxy compounds – large areas call for replacement. Houses built after the early 1980’s are more at risk, since some effective chemical preservatives were withdrawn from use for environmental reasons. If trim is covered with aluminum or other cladding, be sure that no water can get inside where damage will not be visible. When replacing damaged woodwork, prime and paint all surfaces of the new wood before installing it to give added protection.

Remember that the tops of windows and entryways get wet too. Out of sight should not mean out of mind (especially flat areas where water can collect). Paint white if you possible can – white is less likely to fade and bleach than colors, and this means it can sometimes be touched up instead of repainted. For paint and caulk, use the best you can afford. It takes no longer to apply than cheap material, and it lasts longer.

DRAINAGE

Grading at the foundation is very important. Since the construction trench around the foundation was backfilled with disturbed soil, it is usually less dense than the surrounding soil, and frequently has settled to create a shallow recess that can hold surface water against the foundation wall. Consider regrading this area where necessary by banking the soil so it slopes away from the house, dropping 1” per foot for 4 or 5 feet out from the wall. Covering this soil with black plastic sheeting (with holes torn at strategic places to allow root water for plants) and then using coarse mulch as a ground cover can be quite effective as a watershed. If there are planter curbs, timbers or other water-retaining garden edgings, the best option is to remove them. If you must keep them, try to regrade them flush with the top so water will waterfall outside rather than being trapped inside. Drainage holes in the edging can also help water escape. NOTE: Evaluate your situation carefully before taking action! Sometimes conventional regrading can lead to the burial of wooden elements such as trim or wooden window or door components, cover the base of the air conditioner compressor, or facilitate insect infestation. This can lead to simply exchanging one problem for another. Watch out for these pitfalls:

If the slope of your yard (or your neighbor’s yard) is towards your house, be especially cautious. Sometimes good foundation grading can serve as an earthen “berm” to channel water around the house. More extreme conditions may call for regrading of the yard or the use of swales and other external ditches or channels to keep water away.

WALKS/DRIVES

If hard materials such as concrete, masonry or asphalt have been used, guard against freeze damage by filling any cracks as they occur. They are very common where horizontal and vertical faces meet. Cracks can also be caused by shrinkage in the material itself, or by settlement of the soil underneath. Wrought iron railings frequently are set in concrete, and if there are “pockets” in the concrete water can collect and contribute to premature rusting of the posts. Consider using concrete patching

compounds to mound these pockets up to shed water. Water repellent coatings are sometimes recommended to reduce the potential for water being absorbed by porous masonry (especially if it is too coarse). Others feel that they can do more harm than good by interfering with the escape of water if it does get in. If asphalt is present, coatings are available which range from just a black "paint" to those containing aggregate that will fill small cracks to rubberized coating which help shed water. Use the best materials you can afford.

BREAKERS

Most service panels contain circuit breakers (switches designed to "trip" if an excessive amount of current is drawn through them). These should be tripped and reset by hand periodically to help prevent them from becoming stuck or fused in the open position.

Older services frequently predate our modern dependence on electrical appliances. Accordingly, they are often low capacity, ungrounded systems. Do not try to force the system to perform tasks beyond its design. Consider proper upgrades with modern techniques instead. Circuits that trip or blow can indicate a problem such as overloads or short circuits. An over current device is a protection and a warning. Never attempt to defeat these devices! Find and correct the root of the problem! Electrical faults can cause fires and can cause injuries or death from shock.

Maintain proper unobstructed clearance (30"x36"x6') in front of the panel – this is important not only for convenience but to allow firemen ease of access to switch off power in the event of a fire. Any danger signs such as "chatter", excessive heat, arcing, electrical or burning odors, water in or around the panel and so on should be investigated by a licensed electrician immediately. Federal Pacific panels are reported to have been associated with a high incidence of catastrophic failure. If you have these panels consult with your electrician on potential replacements

HEAT PUMPS

HEAT PUMP LIFE EXPECTANCY IS GENERALLY 10-15 YEARS. IT IS USUALLY THE EXTERIOR UNIT (CONTAINING THE COMPRESSOR) WHICH FAILS. PROPER UNDERSTANDING AND MAINTENANCE CAN PLAY A LARGE ROLE IN MAXIMIZING LIFE.

HOW AND WHY THEY WORK- Heat pumps seem complex, but they operate on a very simple principle. Here is an illustration:

1) We all know that spray deodorant is a liquid at room temperature while still pressurized in the can. When we spray it out, however, (dropping the pressure) it changes to a gas-- and it gets cold! WOW!

2) We also know that when we raise the pressure on a material, even if no heat is being applied it gets warmer! WOW!

This relationship between pressure, liquid/gas state and temperature is the basic mechanism by which heat pumps operate. Using special tubes to circulate a chemical between a coil inside the house and one outside the house, and by *increasing or decreasing* the pressure in the proper places (and therefore *altering the temperature*), heat pumps perform the cool part of the cycle inside the house in the summer, and put the warm part inside in the winter. The thermostat setting controls heating and cooling modes automatically.

Because the heat is derived from this manipulation of pressure, liquids and gasses and not from the burning of gas, oil or from electric resistance elements, the heat provided is a bit lower than that produced by those methods. Air at the supply registers is usually in the 90-100 degree range, compared to 110 and up in other systems. Even though a room heated to 90 would be quite warm, because skin temperature is 98.6 this air can feel cool on the skin. This is why people sometimes speak of heat pumps as "cool".

Another implication of these lower temperatures is that the heat pump may not be adequate by itself in the event of rapid temperature drop or when it is extremely cold (below 30 degree or so). This is one reason all heat pumps are equipped with an auxiliary conventional heat source which provides supplementary heat if the heat pump mode is inadequate to meet your needs, and which serves as an emergency backup in the event of mechanical or other problems with the exposed exterior components.

HEAT PUMP THERMOSTATS-Most heat pumps have similar controls. The blower, which regulates airflow, usually has "auto" and "on" settings. In "auto", the blower only operates when actively heating or cooling. In "on" it will circulate air consistently (frequently contributing to more even temperature distribution and better air filtration).

There is usually a switch with "heat-off-cool" setting which, combined with the control to set the desired temperature, tell the unit what to do. Do not operate in "cool" unless temperatures have been above 60 degree for some time, and do not operate in "heat" unless they have been below this point to reduce the risk of damage.

There is also a switch labeled "emergency" which enables you to bypass the heat pump mode entirely, shut down the outdoor portion of the system, and operate exclusively with the backup conventional system (usually electric). In this setting, an indicator light will usually be on to let you know that the heat pump function is not operating. Your unit may also have an "auxiliary" light or indicator, which when on tells you that the backup heat is operating to supplement the heat pump mode.

GENERAL INFORMATION-Before turning the heat pump on be sure electricity has been supplied for enough time for internal heaters to warm the chemicals to an appropriate temperature. This can take as little as about 8 hours in cold weather and 2 hours at other times, or as much as 24 hours (check for the specific requirements of your make and model). This is necessary to avoid damaging the compressor, which is the heart of the system. In the event of a power outage of more than a few minutes in cold weather, switch the unit to “emergency heat” so that when power is restored the unit does not automatically start to run in the heat pump mode before the heaters can do their job. Operate in this setting for 6-8 hours before returning to heat pump mode.

GOOD AIRFLOW IS CRITICAL both for proper operation and to protect against massive system failure. Keep the exterior coil clear of any obstructions-shrubs, toys, garden tools, and so on- for several feet in all directions. Keep the coil in good repair-dents, bent fins and so on can impair proper airflow. If the coil gets dirty from dust, lint from the dryer vent, or other sources, have it cleaned for the same reason.

The interior coil is inside the interior air handler unit, which also contains the blower, air filter and supplemental heating system. Again, good airflow is critical. **CHANGING THE FILTERS ONCE A MONTH IS THE SINGLE MOST IMPORTANT STEP YOU CAN TAKE TO MAXIMIZE THE LIFE OF YOUR UNIT!** Dirt that evades a dirty, missing or improperly installed filter will collect on the blower vanes and on the coil, reducing airflow and shorting the life of the unit! Keeping supply registers and return air grills unobstructed also contributes to better operation. If airflow is weak, check for dirty filters, blocked return grills, or blower failure. These all can be corrected. If the culprit is poor ducting, however, corrections may be difficult to perform cost effectively. If the amount of temperature change is less than the design prescribes, refrigerant levels may be too low. A technician must check this.

Be sure to use overcurrent protection that matches the manufacturers data plate. Failure to do so can have implications for warranties and fire insurance. This is frequently not changed to match a new unit being installed.

HEATING NOTES- You may be used to setting your thermostat back at night to save energy with a conventional furnace. This is usually not appropriate for a heat pump, since any difference of more than 2 degrees between the temperature setting and the temperature in the room will cause the supplemental heat to come on, frequently consuming more energy than was saved by the setback. The best policy is usually to set the thermostat and then leave it alone.

In heat mode the unit is essentially air conditioning the out of doors. As a result, the exterior unit gets extremely cold, and ice may build up on it. This is normal, and a defrost cycle usually is designed to come on periodically to melt the ice. (Under some circumstances, the resulting moisture droplets can be blown out by the fan as what appears to be a cloud of “smoke”-don’t be too startled by this!) If excessive ice builds up over 60 to 90 minutes, however, the unit may not be operating properly. Switch to “emergency” heat and call for service. If the auxiliary heat indicator (discussed in the thermostat section) remains on when outdoor temperatures are above 30 degree the unit may also not be operating properly. Call for service.

COOLING NOTES-If the air gets very cold very quickly, check for dirt on the filters and the coil. Too much cooling can mean that air is remaining in contact with the chilled coil too long- which is a sign of reduced airflow and may lead to premature failure of the unit. If humidity in the house remains high, or water is collecting in the around the bottom of the interior unit, the condensation drain may be clogged and need cleaning.

An ounce of prevention is worth more than a pound of cure-proper maintenance by you and regular service by qualified personnel familiar with your make and model every year or two can yield big dividends in better operation and longer life!

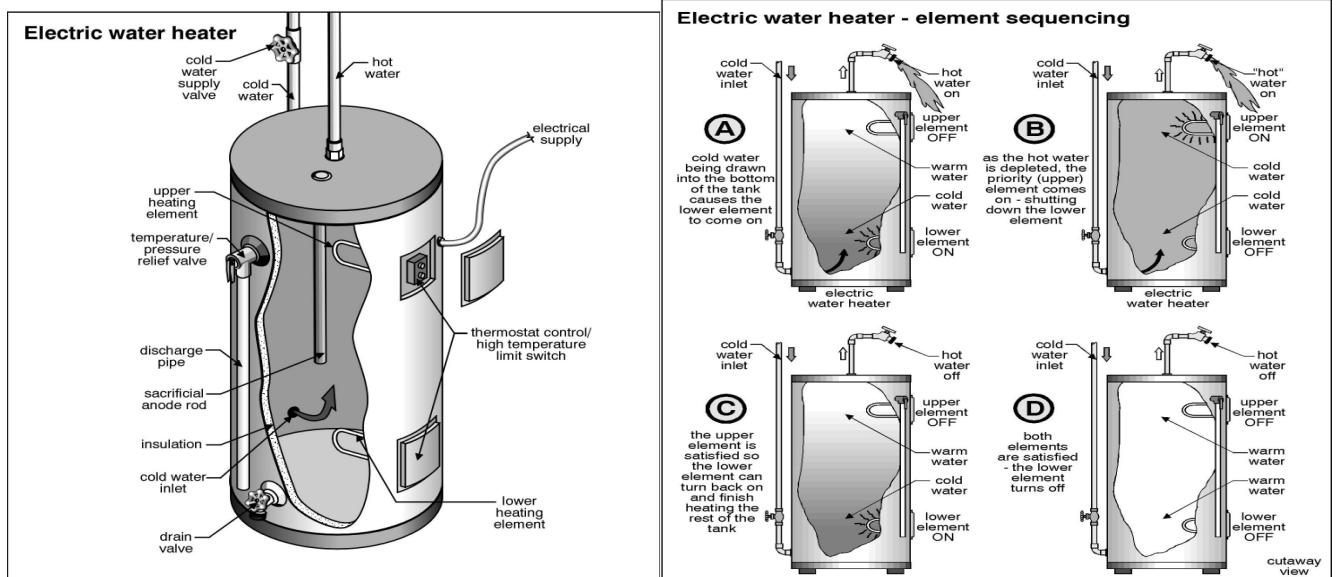
ACCESSORIES-

HUMIDIFIERS- Humidifiers generally fit into three categories—those that spray water directly into the top of the furnace (**atomizing**), those which utilize a basin to hold water and use a rotating medium inside the basin to deliver water into the air stream (**rotary medium**), and those which drain water through an internal screen, blow air through the screen and drain the excess water out of the unit (**flow-through**). Be wary of any humidification introduced directly above the unit. Leaks can cause premature rustout and shortened life on all types of equipment. If you choose a central humidifier, try to locate the humidifier on a trunk duct several feet away from the air handler. All humidifiers can incubate mold and mildew, which can cause odors, contribute to allergies, and so on. Consider using in line filters or water treatment chemicals containing algacides and mildewcides, along with regular maintenance, to control this. Humidifiers tend to build up scale and mineral deposits quickly which can cause valves to clog, floats to stick and can prevent moving parts from turning freely. All humidifiers should be disassembled and cleaned with vinegar and water solutions on all sensitive areas every 2-3 months during the heating season. Be careful to disconnect power and to avoid getting the motor wet. Flow-through style units seem to require less attention than most, but all are vulnerable and should be watched.

ELECTRONIC AIR CLEANERS-Electronic filters can be very effective at cleaning dust, pollen, and other airborne particles from the air, contributing to better health and greater comfort for the inhabitants, as well as better operation and longer life for your air conditioner.

ELECTRIC WATER HEATER

Water heaters usually last from 7-12 years. Electric units are heated by elements installed in the side of the tank behind large metal plates, and the temperature is set by a dial on the bottom, or primary, element. The upper element is the high recovery element and usually comes into play only when large demands are being made on the unit. Temperatures should be kept between 120-125 degrees for safety—less if there are young children or elderly/infirm vulnerable to scalding. If you see water on the floor around the water heater and it cannot be traced to a leaking fitting or some other source, it may indicate a leak in the tank. This calls for replacement. See the maintenance checklist in your manual for some tips that can extend the life of this component.



MAIN PLUMBING SERVICE

Main service lines are usually copper, although they can be galvanized, plastic, or leaded. They usually enter the house in the front of the basement through the wall or floor, and will have a main shutoff valve to turn off all water to the house in the event of an emergency. Keep this valve accessible – you rarely need to use it, but when you do, you need it fast! Consider periodically opening and closing the valve to help prevent mineral deposits or other forces from preventing the valve from performing its purpose. At or near this valve you may also see a water meter, a pressure regulator, and/or a jumper (a wire “shunt” around these items to help maintain electrical continuity of the cold water pipes as a ground for the electrical system if one of these items is removed for service). If a pressure regulator is present, it allows you to decrease or increase your water pressure up to the level of the municipal supply. We recommend not increasing the pressure unless your pressure is extraordinarily low to avoid creating leaks in the system or damaging the valves in appliances.

BATHROOMS

SINKS – Sinks are usually cultured marble, enameled steel, or vitreous china. Watch out for dropping anything heavy on china or cultured marble, since they can chip or break. Enameled steel will also chip, and is prone to rusting out, especially around the overflow. Be sure to maintain the faucet washers and packing to prevent leaks. Even small leaks can lose an enormous amount of water over time, and can increase your water bill significantly.

TUBS/SHOWERS - If your family includes athletes, teenagers or anyone else for whom 45-minute recreational showers are a necessity of life, check around the tub and shower. If your fixtures are surrounded by ceramic tile, any gaps or cracks in either the tile grout or the caulking can allow water seepage behind the tile, leading to loosened tile, damaged wallboard, and, in extreme cases, damaged sub flooring, wall framing and lower living areas. Check the tile in the lowest 3-5 rows above the base for any movement or softness. Since gravity will draw moisture down to collect here first, this is where the first signs should appear. If your shower surround is tile board that is paneling with a water resistant face) watch its condition carefully. These are not particularly durable, and moisture that gets in at the edges or through scratches or flaws in the surface can cause

rapid swelling and deterioration of the panel. Even fiberglass, which is not usually affected by water itself, must be well caulked at the seams and the edges. Look for these signs of trouble. Damage may remain invisible for a long time before it becomes advanced enough to become obvious.

TOILETS – If you develop any movement in the toilet bowl, whether twisting or rocking, consider having the commode reseated properly. The inevitable small shifts each time someone gets on and off can deform the wax seal between the bowl base and the drain fitting beneath and create a slow leak or drip below the bowl which can move down into the sub flooring and framing. This can be very destructive because the moisture may never show on the surface, permitting the leak to go undiscovered for a long time. Extensive damage to the plywood sub flooring and floor framing can occur before damage to the visible floor – or the ceiling underneath – prompts further investigation. If you develop this problem, remove the toilet, check for and repair any damage found, replace the wax seal, and remount the bowl securely. **DO NOT JUST TRY TO TIGHTEN DOWN THE BOWL!** Not only will this not address the deformed wax seal, but also the toilet flange may well break!

Ventilation of bathrooms is important to remove moisture from the house. See the Attic page for notes on venting to the outside. Also refer to the Electric page for comments on the value of Ground Fault Circuit Interrupters – these should control all outlet power in bathrooms as well as any whirlpool or Jacuzzi mechanisms.

LIVING AREAS (KITCHENS)

Dishwashers frequently have air gap fittings on top of the sink, which can overflow if the drain becomes partially blocked. (Failure to rinse dishes off before washing can contribute to this as can dishwasher soap, which does not completely liquefy) The top of the air gap can be removed and blockages cleared with a wire or perhaps a bottlebrush. Keep the slots in the metal cap turned toward the sink to help reduce flooding of the countertop if there is a blockage. Most range hoods have filters in them, which trap grease and oil and will become blocked. Clean these periodically to maintain the effectiveness of the ventilation. Refrigerators have coils either on the back or underneath that serves to release heat produced in the refrigeration process. If these become covered with dust, they can force the unit to work much harder than necessary, and can cause premature failure of the unit. Cleaning with the hose from your vacuum may help. The use of GFCI's on all outlets within 6' of the sink should be considered. See **ELECTRIC** comments for more information.

LIVING AREAS

Be sure that all prime windows operate freely-especially those in bedrooms. In the event of fire, a stuck sash does not help a quick exit! On all thermal double pane windows and doors and on double pane skylights, any sign of moisture or cloudiness between the panes can indicate a failed thermal seal. Sometimes faint cloudiness can be chased away with a hair dryer, but any substantial moisture cannot be removed. The only solution is to replace the failed component.

Interior doors are usually hinged 6-panel or hollow core slab doors. Especially on heat pump heating systems, it is important to have adequate undercut on the doors. (This is the space between the bottom of the door and the floor or carpet.) Proper undercut facilitates air movement between rooms and helps even the interior temperatures.

Walls and ceiling often show cracks at the tops of windows or doors, and in corners. Since houses move, expand and contract with the seasons and react to humidity or lack thereof, this can be quite normal and common. If you want to try to repair these kinds of non-structural cracks, consider using the new fiberglass self-adhesive joint compound tapes instead of the old paper tapes. They help spread the load more evenly and make recurrences of the crack less likely. Do not be surprised if the crack reappears, however. These kinds of cracks can be very difficult to eliminate permanently. Any areas where the wall is raised or uneven can indicate prior repairs (although it can also imply be imperfect workmanship). Ceilings should be watched carefully under bathrooms. Early signs of plumbing leaks can show here before damage gets too extensive. Be curious about any changes you see.

SOLID FUEL DEVICES

Masonry fireplaces usually have a firebox lined with a special buff colored firebrick to withstand the high temperatures. If this brick becomes loosened or the mortar degrades, have repairs performed. Fireplaces with metal fireboxes and flues are frequently seen in development construction or when they were retrofit into a house after construction. They may look like traditional fireplaces (0 clearance style) or can be freestanding. Smoke stains on the face of any fireplace can be a sign of periods of poor draft. This can prevent toxic gasses from being vented properly from the house. Obstructions, closed or broken dampers, broken flue liner, bird nests and other irregularities can contribute to this, as well as create fire hazards. Visual inspections such as this service cannot evaluate chimney problems. Chimney service firms are equipped with special

tools, video cameras, etc. which allow them to diagnose problems inside the chimney fuel. Consult with them if you have questions. I recommend annual chimney cleaning as a safety measure for all fireplaces, which get more than occasional use, and some stoves may even need mid-season attention. Consult with a chimney sweep firm.

SECURITY AND SAFETY

Any prime doors which have glass in arm's reach of the locks, whether in the door or in the wall beside it, are vulnerable to a burglar breaking the glass and releasing the lock from the inside. Deadbolt locks which operate with keys from both sides (double-cylinder) prevent this. If you choose to add this kind of protection, however, be aware of the risk that you may not be able to get out quickly in the event of a fire. Consider keeping a key near the door in an accessible place for all inhabitants.

Patio doors are equipped with latches to close them-these are not locks! There are a variety of supplemental devices available such as drop down bar locks called Charley Bars, locks that can be mounted on the door to secure it to the other panel or to the jamb, anti-lift plates, and so on. Many people simply put a cut length of broom handle in the track-a very effective and inexpensive method. If your door is not made with thermal double pane glass, consider adding a storm door to reduce the huge heat loss single pane glass can permit.

Consider an ABC fire extinguisher (effective on all 3 classes of fire) on each level of the house. Good places to keep them include a workshop where paints or chemicals may be stored, near fireplaces, in the kitchen, and one by your bed. (In an emergency, it may help you get out of the house.) Smoke detectors also should be used in more locations than the minimum requirements call for.

Consider one on each level, in utility or furnace rooms, in all bedrooms and halls serving them, and any other locations you choose. Change the batteries annually, and test their operation frequently.

Maintenance Advice

UPON TAKING OWNERSHIP

After taking possession of a new home, there are some maintenance and safety issues that should be addressed immediately. The following checklist should help you undertake these improvements:

- Change the locks on all exterior entrances, for improved security.
- Check that all windows and doors are secure. Improve window hardware as necessary. Security rods can be added to sliding windows and doors. Consideration could also be given to a security system.
- Install smoke detectors on each level of the home. Ensure that there is a smoke detector outside all sleeping areas. Replace batteries on any existing smoke detectors and test them. Make a note to replace batteries again in one year.
- Create a plan of action in the event of a fire in your home. Ensure that there is an operable window or door in every room of the house. Consult with your local fire department regarding fire safety issues and what to do in the event of a fire.
- Examine driveways and walkways for trip hazards. Undertake repairs where necessary.
- Examine the interior of the home for trip hazards. Loose or torn carpeting and flooring should be repaired.
- Undertake improvements to all stairways, decks, porches and landings where there is a risk of falling or stumbling.
- Review your home inspection report for any items that require immediate improvement or further investigation. Address these areas as required.
- Install rain caps and vermin screens on all chimney flues, as necessary.
- Investigate the location of the main shut-offs for the plumbing, heating and electrical systems. If you attended the home inspection, these items would have been pointed out to you.

REGULAR MAINTENANCE

EVERY MONTH

- Check that fire extinguisher(s) are fully charged. Re-charge if necessary.
- Examine heating/cooling air filters and replace or clean as necessary.
- Inspect and clean humidifiers and electronic air cleaners.

- If the house has hot water heating, bleed radiator valves.
- Clean gutters and downspouts. Ensure that downspouts are secure, and that the discharge of the downspouts is appropriate. Remove debris from window wells.
- Carefully inspect the condition of shower enclosures. Repair or replace deteriorated grout and caulk. Ensure that water is not escaping the enclosure during showering. Check below all plumbing fixtures for evidence of leakage.
- Repair or replace leaking faucets or shower heads.
- Secure loose toilets, or repair flush mechanisms that become troublesome.

SPRING AND FALL

- Examine the roof for evidence of damage to roof coverings, flashings and chimneys.
- Look in the attic (if accessible) to ensure that roof vents are not obstructed. Check for evidence of leakage, condensation or vermin activity. Level out insulation if needed.
- Trim back tree branches and shrubs to ensure that they are not in contact with the house.
- Inspect the exterior walls and foundation for evidence of damage, cracking or movement. Watch for bird nests or other vermin or insect activity.
- Survey the basement and/or crawl space walls for evidence of moisture seepage.
- Look at overhead wires coming to the house. They should be secure and clear of trees or other obstructions.
- Ensure that the grade of the land around the house encourages water to flow away from the foundation.
- Inspect all driveways, walkways, decks, porches, and landscape components for evidence of deterioration, movement or safety hazards.
- Clean windows and test their operation. Improve caulking and weather-stripping as necessary. Watch for evidence of rot in wood window frames. Paint and repair window sills and frames as necessary.
- Test all ground fault circuit interrupter (GFCI) devices, as identified in the inspection report.
- Shut off isolating valves for exterior hose bibs in the fall, if below freezing temperatures are anticipated.
- Test the Temperature and Pressure Relief (TPR) Valve on water heaters.
- Inspect for evidence of wood boring insect activity. Eliminate any wood/soil contact around the perimeter of the home.
- Test the overhead garage door opener, to ensure that the auto-reverse mechanism is responding properly. Clean and lubricate hinges, rollers and tracks on overhead doors.
- Replace or clean exhaust hood filters.
- Clean, inspect and/or service all appliances as per the manufacturer's recommendations.

ANNUALLY

- Replace smoke detector batteries.
- Have the heating, cooling and water heater systems cleaned and serviced.
- Have chimneys inspected and cleaned. Ensure that rain caps and vermin screens are secure.
- Examine the electrical panels, wiring and electrical components for evidence of overheating. Ensure that all components are secure. Flip the breakers on and off to ensure that they are not sticky.
- If the house utilizes a well, check and service the pump and holding tank. Have the water quality tested. If the property has a septic system, have the tank inspected (and pumped as needed).
- If your home is in an area prone to wood destroying insects (termites, carpenter ants, etc.), have the home inspected by a licensed specialist. Preventative treatments may be recommended in some cases.

PREVENTION IS THE BEST APPROACH

Although we've heard it many times, nothing could be more true than the old cliché "an ounce of prevention is worth a pound of cure." Preventative maintenance is the best way to keep your house in great shape. It also reduces the risk of unexpected repairs and improves the odds of selling your house at fair market value, when the time comes.

Please feel free to contact our office should you have any questions regarding the operation or maintenance of your home.
Enjoy your home!