Home Inspection Report

7-1-21

Lindsay & Kimberly Rose
5004 Seelye Ct South
Seattle, WA 98108
Inspection Report no# 7-21156

GNK RE Services LLC,
James Beck
WA State Lic# 713
1143 MLK Jr. Way #51
Seattle, WA 98122
206-240-9593
jbeck@gnkreservices.com

Report Overview

THE HOUSE IN PERSPECTIVE

This is a well-built home. 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.

CONVENTIONS USED IN THIS REPORT

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

Major Concern (MC): *a system or component which is considered significantly deficient or is unsafe. Significant deficiencies need to be corrected and, except for some safety items, are likely to involve significant expense.*

Safety Issue (SI): *denotes a condition that is unsafe and in need of prompt attention.*

Repair or Replace (RR): *denotes a system or component which is missing or which needs corrective action to assure proper and reliable function.*

Improve (IM): *denotes improvements that should be anticipated over the short-term.*

Monitor / Investigate (MI): *denotes a system or component needing further investigation and/or monitoring in order to determine if repairs are necessary*.

Deferred Cost (DC): *denotes items that have reached or are reaching their normal life expectancy or show indications that they may require repair or replacement anytime during the next five (5) years*.

Please note that those observations listed under "Discretionary Improvements" are not essential repairs, but represent logical long term improvements.

GNK Real Estate Services recommends that all disclosures, issues and concerns noted in the summary as well as the report (in its entirety) be investigated further to accommodate the buyers/sellers/homeowners satisfaction. It is also recommended that all issues, concerns, and problems pertaining to the property be evaluated and repaired by a licensed contractor.

IMPROVEMENT RECOMMENDATION HIGHLIGHTS / SUMMARY

The following is a synopsis of the potentially significant improvements that should be budgeted for over the short term. Other significant improvements, outside the scope of this inspection, may also be necessary. Please refer to the body of this report for further details on these and other recommendations.

GENERAL SUMMARY ITEMS (ALL OTHER FINDINGS ARE IN THE BODY OF THE REPORT WITH PICTURES)

THE SCOPE OF THE INSPECTION

All components designated for inspection in the Washington State Standards of Practice are inspected, except as may be noted in the "Limitations of Inspection" sections within this report.

It is the goal of the inspection to put a home buyer in a better position to make a buying decision. 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.

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

Please refer to the pre-inspection contract for a full explanation of the scope of the inspection.

Inspection Details

In Attendance:
Buyer's & Agent only

Type of building:
Single Family (2 story), Plus Lower Level

Temperature:
above 40 (F)

Weather:
Partly Sunny

Ground/Soil surface condition:
Dry

Rain in last 3 days:
No

Radon Test:
No

Water Pressure Test:
70 (Ideal Water Pressure 60-80 PSI)

Table of Contents

Structure

DESCRIPTION OF INSPECTED STRUCTURE

Foundation:	•Poured Concrete •Basement and Crawl Space Configuration •Crawl Space(s) Viewed From Inside
Columns:	•Wood •Concrete Block •Concrete Slab
Floor Structure:	•Wood Joist
Wall Structure:	•Wood Frame
Ceiling Structure:	•Joist
Roof Structure:	•Rafters •Trusses •Plywood Sheathing •Spaced Plank Sheathing •OSB Sheathing

STRUCTURE OBSERVATIONS

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. No repair to structural components is necessary at this time.

RECOMMENDATIONS / OBSERVATIONS

LIMITATIONS OF STRUCTURE INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions:

- Structural components concealed behind finished surfaces could not be inspected.
- Only representative samplings of visible structural components were inspected.
- 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.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Roofing

DESCRIPTION OF INSPECTED ROOFING

Roof Covering:	•Architectural Composition 30 yr (Approximately 5-10 yrs old) 1 - Layer
Roof Flashings:	•Metal
Chimneys:	•Masonry •Metal
Roof Drainage System:	•Aluminum •Downspouts discharge above or below grade
Method of Inspection:	•Walked Roof •Drone •Ladder at Eaves •Binoculars
Skylights:	•Curb less •Plastic Bubble Type
Roof Ventilation:	•Ridge Vents •Roof Vents •Gable Vents •Soffit Vents •Eave (Bird Block) Vents •Roof Slope Vents

ROOFING OBSERVATIONS

General Comments

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

RECOMMENDATIONS / OBSERVATIONS

Sloped Roofing

- **RR:** Debris should be removed from the roofing to reduce risk of leaks and early roof wear. Any damage to the shingles found during cleaning should be repaired or replaced by a qualified roofing contractor.
- **MI:** The roofing material is in good condition. However the installation workmanship was poor. While this does not pose a serious short term concern, it risks leaks and reduced roof life.
- **MI:** The roofing is in fair condition. The installation of this roofing appears to have been performed in an amateur fashion. This roofing material is not recommended for flat roof applications. While this condition does not pose a serious short term concern, it reduces roof life expectancy.

Chimneys

- **RR:** A rain cap and vermin screen should be installed on the masonry chimney and the chimney flue should be checked for damage. Damaged flues can be unsafe.
- **RR:** No spark screen or rain cap was installed at one or more chimney flue terminations. Spark screens reduce the chance of embers exiting the flue and causing fires. They also prevent wildlife (e.g. birds, rodents, raccoons) from entering flues. Rain caps prevent water from entering flues, mixing with combustion deposits and creating caustic chemicals which can corrode flues. They also prevent damage to masonry from freeze-thaw cycles and prevent metal components (e.g. dampers, metal firebox liners) from rusting. Recommend that a qualified person install rain caps with spark screens per standard building practices where missing.
- **RR:** The masonry chimney needs re-pointing (replacing the mortar between the bricks) to avoid water damage.
- **MI:** The flashing at the base of chimney was observed to be sealed with roofing tar. Leaks can occur as a result. This is condition should be monitored and re-sealed as necessary.

Gutters & Downspouts

- **RR:** The gutters require cleaning to avoid spilling roof runoff around the building – a potential source of water entry or water damage.
- **MI:** 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.
- **RR:** The above grade downspout(s) should discharge water at least five (5) feet from the house. Storm water should be encouraged to flow away from the building at the point of discharge.

Flashings

- **RR:** The installation of the flashing is incomplete and should be repaired to avoid leaks.

LIMITATIONS OF ROOFING INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions:

- Not the entire underside of the roof sheathing is inspected for evidence of leaks.
- Evidence of prior leaks may be disguised by interior finishes.
- 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, weather, or other safety concerns.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Exterior

DESCRIPTION OF INSPECTED EXTERIOR

Wall Covering:	•Wood Siding •Vinyl Siding •Cement Board
Eaves, Soffits, and Fascia's:	•Wood •Vinyl
Exterior Doors:	•Solid Wood •Metal •Sliding Glass
Window/Door Frames and Trim:	•Vinyl-Covered •Metal-Covered •Wood-Covered
Entry Driveways:	•Concrete •Gravel •Asphalt
Entry Walkways and Patios:	•Concrete •Pavers
Porches, Decks, Steps, Railings:	•Concrete •Wood •Steel
Surface Drainage:	•Level Grade •Graded Away From House
Garage Size:	•2 Car Garage w/ Solid Concrete Slab
Overhead Garage Door(s):	•Steel •Automatic Opener Installed •Wood
Fencing:	•Wood

EXTERIOR OBSERVATIONS

General Comments

The exterior of the home shows normal wear and tear for a home of this age.

RECOMMENDATIONS / OBSERVATIONS

Exterior Walls

- **MI:** Recommend weather sealing (caulking) around doors, window, siding to trim intersections and any objects penetrating through the siding as necessary annually. This will help to help avoid moisture intrusion, maintain weather tightness and help reduce energy cost.
- **RR:** Damaged siding should be repaired to preserve the wall.
- **RR:** The wood siding should be painted to preserve the building.
- **RR:** The loose siding should be re-secured to avoid more wind-damage.
- **RR:** Siding/soil contact at the base of the siding should be eliminated. Rotted or damaged siding that is uncovered should be repaired. These areas are at risk of additional hidden damage, recommend 6 to 8 inches of clearance from the siding to finish grade.

Landscaping

- **IM:** Tree branches at the rear wall should be trimmed away from the house to avoid pest entry and damage to the building.

Garage

- **Repair, Safety Issue:** 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 toxic automobile gases entering the house. Openings should be sealed for your protection.
- **SI, RR:** One or more gaps, holes and/or areas with missing or substandard surface materials were found in the attached garage walls or ceilings. Current standard building practices call for wooden-framed ceilings and walls that divide the house and garage to provide limited fire-resistance rating to prevent the spread of fire from the garage to the house. Recommend that a qualified person repair per standard building practices. For example, by patching openings or holes, firestopping holes or gaps with fire-resistant caulking, and/or installing fire-resistant wall covering (e.g. Type X drywall).
- **SI:** The door between the garage and the house did not appear to be fire resistant, or the inspector was unable to verify that it was via a label. This is a potential safety hazard. House to garage doors, to prevent fire and fumes from spreading from the garage into interior living space, should be constructed of fire-resistant materials. Doors, generally considered to be suitable for the purpose, are solid core wood, steel, honeycomb steel or a door that has been factory labeled as fire rated. Recommend that a qualified contractor replace or repair the door and, at that time, make any other corrections that

might be required to provide suitable fire resistance between the garage and the dwelling per standard building practices. For more information, visit: http://www.google.com/search?q=attached+garage+fire+resistance

- **RR:** Fungal rot was found at one or more exterior door jambs. Recommend that a qualified person repair as necessary. All rotten wood should be replaced.

LIMITATIONS OF EXTERIOR INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions:

- A representative sample of exterior components was inspected rather than every occurrence of components.
- 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, seawalls, break-walls, docks, erosion control and earth stabilization measures are not inspected unless specifically agreed-upon and documented in this report.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Electrical

DESCRIPTION OF INSPECTED ELECTRICAL

Size of Electrical Service:	•120/240 Volt Main Service - Service Size: 200 Amps
Service Drop:	•Underground •Above Ground
Service Entrance Conductors:	•Stranded Aluminum •Copper
Service Equipment & Main Disconnects:	•Main Service Rating 200 Amps •Breakers
Distribution Wiring:	•Copper •Solid Conductor Aluminum
Switches & Receptacles:	•Grounded •Ungrounded
Smoke Detectors & Carbon Monoxide:	•Installed or Installation Recommended
Service Grounding:	•Copper •Aluminum
Wiring Method:	• Non-Metallic Cable "Romex" •Knob & Tube •2 Gauge Fabric Covered
Ground & Arc Fault Circuit Interrupters:	•Bathrooms •Kitchen •Exterior •Electrical Panel •Installation Recommendation

ELECTRICAL OBSERVATIONS

Positive Attributes

The size of the electrical service is sufficient for typical single family needs. 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. All 3-prong outlets that were tested were appropriately grounded. 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. All visible wiring within the home is copper. This is a good quality electrical conductor.

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 below.

RECOMMENDATIONS / OBSERVATIONS

Carbon Monoxide Detectors

- **SI:** The installation of operating carbon monoxide detectors outside sleeping areas and on each level of the home as necessary. This is a requirement by the state of Washington.

Smoke Detectors

- **SI:** Recommend the installation of updated (photoelectric, ionization or dual) detectors outside/inside sleeping areas throughout the home per city code.
- **SI:** For improved safety we recommend the installation of updated (photoelectric, ionization or dual) detectors outside/inside sleeping areas throughout the home per city code. The current detectors were observed to be over ten years old. We also recommend proving that the smoke detector system is operable prior to the close of the home.
- **SI:** The installation of operating smoke detectors outside/inside sleeping areas is recommended throughout the home per city code.
- **SI:** Recommend that the smoke detectors be proven operable prior to close of the home. The detectors could not be tested during the inspection as a result of possibly being connected to the house alarm system.

Main Panel

- **RR:** The main distribution panel does not appear to be properly grounded/bonded. This should be investigated.

Outlets

- **SI:** An outlet at the rear of the house has reversed polarity (i.e. it is wired backwards). This outlet and the circuit should be investigated and repaired as necessary.
- **SI:** The installation of a ground fault circuit interrupter (GFCI) is recommended in the kitchen. A GFCI offers increased protection from shock or electrocution.

- **MI:** Ungrounded 3-prong outlets throughout the home (living room, bedrooms and exterior) should be eventually replaced when necessary. Having a ground increases safety, a grounded circuit could be strung to this outlet, or a separate ground wire could be connected. Some electrical codes allow the installation of a ground fault circuit interrupter (GFCI) type outlet where grounding is not provided. In this case the GFCI may work but can't be tested by normal means. Recommend further evaluation and repair by a qualified electrician.

- **MI:** One or more modern, 3-slot electric receptacles (outlets) were found with an open ground. Three-slot receptacles should have a hot, a neutral and a ground wire connected. Homeowners often install new 3-slot receptacles on older, 2-wire circuits that only have hot and neutral wires. This is a shock hazard when appliances that require a ground are used with these receptacles. Examples of such appliances include computers and related hardware, refrigerators, freezers, portable air conditioners, clothes washers, aquarium pumps, and electrically operated gardening tools. Where the electric system was installed prior to when grounded circuits were required (1960s), it is permissible to replace 3-slot receptacles with 2-slot receptacles to prevent appliances that require a ground from being plugged in to an ungrounded circuit. However, the client should be aware of this limitation when planning use for various rooms, such as an office. For newer electric systems, circuits should be repaired so grounded, 3-wire cables provide power to 3-slot receptacles. Recommend that a qualified electrician repair per standard building practices.

Lights

- **RR:** The lights are inoperative in the main bathroom. If the bulbs are not blown, the circuit should be repaired.

Distribution Wiring

- **RR:** Abandoned live wiring in the basement should be appropriately terminated with a box and cover by a qualified electrician.
- **RR:** Loose live wiring was found in the basement. For example, exposed wiring and/or missing cover plates. This is a safety hazard. Recommend that a qualified electrician evaluate and repair as necessary and per standard building practices.

Knob & Tube Wiring

- **Repair:** Any knob-and-tube wiring that is exposed during renovations should be replaced.

Outlets

- **Repair:** An outlet is inoperative. This outlet and circuit should be investigated.

LIMITATIONS OF ELECTRICAL INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope 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 were tested.
- 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, ancillary wiring, systems, and other components which are not part of the primary electrical power distribution system.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Heating

DESCRIPTION OF INSPECTED HEATING

Energy Source:	•Gas •Oil •Propane •Electricity
Heating System Type:	•Forced Air Furnace – **American Standard MFD** •Radiant •Baseboard Heaters
Vents, Flues, Chimneys:	•Metal-Multi Wall •PVC
Heat Distribution Methods:	•Ductwork •Radiant •Radiators •Electric Heaters
Heating System Gas Shut-off:	•Side of Furnace
Heating System Operation:	•Inspected, No Concerns
Heating System Air Filter:	•Inspected, No Concerns
Whole House Fan:	•Inspected, No Concerns

HEATING OBSERVATIONS

Positive Attributes
The heating system is in generally good condition.

General Comments

The heating system shows no visible evidence of major defects.

RECOMMENDATIONS / OBSERVATIONS

Furnace
- **RR:** The heating system requires service. This should be a regular maintenance item annually to assure safe, reliable heat by a licensed HVAC technician.
- **RR:** The air filter should be replaced to assure reliable operation of the heating system. Depending on the air filter type and style it should be replaced every 90 days or annually. See manufactures manual in this regard.

Supply Air Ductwork
- **IM:** Duct cleaning is recommended annually to assure clean air flow throughout the home.

LIMITATIONS OF HEATING INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions:
- The adequacy of heat supply or distribution balance is not inspected.
- 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.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Cooling / Heat Pumps

DESCRIPTION OF INSPECTED COOLING / HEAT PUMPS

Energy Source: •Electricity •240 Volt Power Supply
Central System Type: •**American Standard MFD** Air Cooled Central Air Conditioning
Through-Wall Equipment: •Present at Side Wall

COOLING / HEAT PUMPS OBSERVATIONS

RECOMMENDATIONS / OBSERVATIONS

Central Air Conditioning

- **RR:** The air conditioning system requires servicing.

LIMITATIONS OF COOLING / HEAT PUMPS INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions:

- Window mounted air conditioning units are not inspected.
- The cooling supply adequacy or distribution balance are not inspected.
- The air conditioning system could not be tested as the outdoor temperature was at or below 65 degrees F.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Insulation / Ventilation

DESCRIPTION OF INSPECTED INSULATION / VENTILATION

Attic Insulation:	•R38 Fiberglass in Main Attic
Exterior Wall Insulation:	•Not Visible
Crawl Space Insulation:	•R20 in Floor above Crawl Space
Vapor Retarders:	•Plastic
Roof Ventilation:	•Roof Vents •Ridge Vents •Soffit
Crawl Space Ventilation:	•Exterior Wall Vents
Exhaust Fan/Vent Locations:	•Bathroom •Kitchen •Dryer
Attic /Crawl Space Fans:	•N/A
Whole House Fan:	•N/A

INSULATION / VENTILATION OBSERVATIONS

General Comments

The home looks like a well-insulated home. No evidence of pest activity was observed in the crawl space and attic at the time of the inspection. A pest control specialist should be consulted for cleaning, treatment and control advice if activity is ever observed. Recommend checking the crawl space and attic annually for preventative measures.

The ceiling insulation installed in the attic was substandard and appeared to have an R rating that's significantly less than current standards (R-38). Heating and cooling costs will likely be higher due to poor energy efficiency. Recommend that a qualified contractor install insulation for better energy efficiency and per standard building practices.

RECOMMENDATIONS / ENERGY SAVING SUGGESTIONS

Crawl Space / Attic

- We recommend annual inspection of the attic and crawl space for the following items; 1) pest activity; 2) roof leaks; 3) ensure that the bathroom exhaust fans are properly venting to the exterior of the home 4) ensure that all insulation is place properly to assure good energy efficiency of the home's envelope. A qualified contractor, pest specialist and or environmental contractor should be consulted for cleaning, treatment and control advice if any of the items stated are ever suspected.

- **RR:** There is evidence of rodent activity in the crawl space. A pest control specialist should be consulted for cleaning, treatment and control advice.
- **RR:** Rodent damaged insulation in the floor above the crawl space should be replaced.
- **RR:** One or more heating or cooling ducts in an unconditioned space (e.g. crawl space, attic or basement) were not insulated, or the insulation was damaged or deteriorated. This can result in reduced energy efficiency, moisture inside heating ducts, and/or "sweating" on cooling ducts. Recommend that a qualified person repair per standard building practices. For example, by wrapping ducts in insulation with an R-value of R-8.

LIMITATIONS OF INSULATION / VENTILATION INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions:

- 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.
- 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.

- An analysis of indoor air quality is not part of our inspection unless explicitly contracted-for and discussed in this or a separate report.
- Any estimates of insulation R values or depths are rough average values.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Plumbing

DESCRIPTION OF INSPECTED PLUMBING

Water Supply Source:	•Public Water Supply
Service Pipe to House:	•Copper •Steel •Plastic
Main Water Valve Location:	•Garage
Interior Supply Piping:	•Copper •Pex •Steel •PVC
Waste System:	•Public Sewer System
Drain, Waste, & Vent Piping:	•Plastic •Steel •Cast Iron •Copper
Water Heater:	•Gas •Electric •Approximate Capacity (in gallons): 50 •On Demand
Manufacturer:	•Rheem – MFD 2007
Fuel Shut-Off Valve Locations:	•Natural Gas Main Valve at Side Wall •Range •Fireplace •Water Heater •Furnace
Water Supply PSI:	•60 PSI
Sump Pump:	•N/A
Plumbing Fixtures:	•Inspected, Functional
Drainage System:	•N/A

PLUMBING OBSERVATIONS

Positive Attributes

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

RECOMMENDATIONS / OBSERVATIONS

Water Heater

- **RR:** It is suspected that the pressure tank serving the water heater is "waterlogged". Replacement is needed.
- **DC:** 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.
- **RR:** Water heaters in seismic zones should be anchored or strapped to resist movement during earthquake conditions.
- **RR:** There is no pressure tank on the cold water supply to the water heater. It is suggested that one be installed.

Waste / Vent

- **MI:** For the most part, the waste piping is old. It may be prone to unexpected problems. Video scoping the waste-line is recommended to assure reliable operation.

Supply Plumbing

- **MI:** Copper and galvanized steel water supply pipes were joined together at one or more locations and the dissimilar metals were in contact with each other. Dielectric fittings that isolate dissimilar metals are often installed at these junctions to prevent corrosion. Recommend that a qualified plumber evaluate and install dielectric fittings where necessary

Plumbing Fixtures

- **RR:** The sink in the main bathroom was observed to drain slowly, suggesting that an obstruction may exist.
- **RR:** A significant amount of water came out of the bathtub spout when the shower at location(s) #C was turned on. The diverter valve is likely defective, or may be encrusted with mineral deposits. Water will be wasted as a result. Recommend that a qualified plumber repair or replace components as necessary.
- **RR:** The hose bib in the front entrance is leaky.

LIMITATIONS OF PLUMBING INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope 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 surface are not inspected.
- Water quantity and water quality are not tested unless explicitly contracted-for and discussed in this or a separate report.
- Clothes washing machine connections are not inspected.
- Interiors of flues or chimneys which are not readily accessible are not inspected.
- Water conditioning systems, solar water heaters, fire and lawn sprinkler systems, and private waste disposal systems are not inspected unless explicitly contracted-for and discussed in this or a separate report.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Interior

DESCRIPTION OF INSPECTED INTERIOR

Wall and Ceiling Materials:	•Gypsum (Drywall) Board
Floor Surfaces:	•Wood •Tile •Carpet
Window Type(s) & Glazing:	•Sliders •Fixed Pane •Double/Single Hung •Double Glazed •Single Pane
Doors:	•Wood-Hollow Core •Wood-Solid Core
Bathrooms:	•Inspected
Bedrooms:	•Inspected
Living Room:	•Inspected
Dining Room:	•Inspected
Family / Bonus Room:	•Inspected
Basement:	•Inspected

INTERIOR OBSERVATIONS

General Condition of Interior Finishes
On the whole, the interior finishes of the home are in good condition. Typical flaws were observed in some areas.

General Condition of Windows and Doors
The doors and windows are good quality.

RECOMMENDATIONS / OBSERVATIONS

Basement Leakage
- **MI:** 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 foundation. 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 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.

Windows
- **RR:** The window(s) has lost its seal. This has resulted in condensation developing between the panes of glass. This "fogging" of the glass is primarily a cosmetic concern, but may need to be replaced because it has lost its insulating value.

Doors
- **RR:** One or more exterior doors were significantly damaged or deteriorated. Recommend that a qualified person replace door(s) as necessary.

Windows
- **Monitor:** The window(s) are inoperative. Improvement can be undertaken as desired.
- **Repair:** Window hardware is missing.
- **Repair:** Window hardware is damaged.

- **Monitor:** It may be desirable to replace window screens where missing in various locations. The owner should be consulted regarding any screens that may be in storage.

LIMITATIONS OF INTERIOR INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope by (but not restricted to) the following conditions

- Furniture, storage, appliances and/or wall hangings are not moved to permit inspection and may block defects.
- Carpeting, window treatments, central vacuum systems, household appliances, recreational facilities, paint, wallpaper, and other finish treatments are not inspected.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Appliances

DESCRIPTION OF INSPECTED APPLIANCES

Appliances Tested: •Electric Range •Gas Range •Built-in Electric Oven •Electric Cooktop •Dishwasher •Waste Disposer •Refrigerator •Clothes Washer •Clothes Dryer

Laundry Facility: •240 Volt Circuit for Dryer •Gas Piping for Dryer •Dryer Vented to Building Exterior •120 Volt Circuit for Washer •Hot and Cold Water Supply for Washer •Waste Standpipe for Washer

APPLIANCES OBSERVATIONS

Positive Attributes
Appliances that were tested responded satisfactorily at the time of the inspection.

RECOMMENDATIONS / OBSERVATIONS
No recommendations at this time. Monitor and service appliances as necessary or per manufactures recommendations.

Dishwasher
- **MI:** The dishwasher is an old unit. While replacement is not needed right away, it would be wise to budget for a new dishwasher. In the interim, a higher level of maintenance can be expected.
- No high loop or air gap was visible for the dishwasher drain. A high loop is created by routing the drain line up to the bottom surface of the counter top above and securely fastening it to that surface. An air gap is a device that makes the drain line non-continuous. Both of these prevent waste-water backflow from entering the dishwasher, and possibly flooding out of the dishwasher if/when a siphon occurs. Some newer dishwashers have these devices built in. The client should try to determine if these devices are built in to this brand and model of dishwasher (e.g. review installation instructions). If not, or if this cannot be determined, then recommend that a qualified contractor install a high loop and air gap per standard building practices.

Electric Range
- **RR:** The range could tip forward. An anti-tip bracket may not be installed. This is a potential safety hazard since the range can tip forward when weight is applied to the open door, such as when a small child climbs on it or if heavy objects are dropped on it. Anti-tip brackets have been sold with all free-standing ranges since 1985. Recommend installing an anti-tip bracket to eliminate this safety hazard. For more information, visit: http://www.google.com/search?q=range+anti-tip+bracket

Clothes Washer
- **IM:** The clothes washer was installed over a finished space and had no catch pan or drain installed. Catch pans and drains prevent water damage to finished interior spaces below if or when the washing machine leaks, overflows or is drained. Recommend that a qualified contractor install both a catch pan and drain per standard building practices.

LIMITATIONS OF APPLIANCES INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope 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.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

Fireplaces / Wood Stoves

DESCRIPTION OF INSPECTED FIREPLACES / WOOD STOVES

Fireplaces: •Gas •Wood •Pellet •Propane
Vents, Flues, Chimneys: •Outside Combustion Air Provided

FIREPLACES / WOOD STOVES OBSERVATIONS

General Comments
On the whole, the fireplace and its components are in above average condition.

RECOMMENDATIONS / OBSERVATIONS

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

Wood / Gas Stove
- **MI:** The gas fireplace and chimney should be inspected and serviced as necessary by a qualified gas fireplace technician per manufactures recommendations.

LIMITATIONS OF FIREPLACES / WOOD STOVES INSPECTION

As we have discussed and as described in your inspection contract, this is a visual inspection limited in scope 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.

Please also refer to the pre-inspection contract for a detailed explanation of the scope of this inspection.

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 carbon & 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 fire.
- ❑ Examine decks, carports, 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 vines, 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 pest entry and 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.
- ❑ Clean, inspect roof, gutters and downspouts around the home.
- ❑ 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.
- ❑ Inspect attic and crawl space twice a year to prevent pest (rodents, ants, spiders, raccoon etc) from setting up camp in these areas of your home.
- ❑ Paint and caulk siding, windows, trim around the home if necessary to avoid pest and weather element damage.

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 secured.
- ❑ 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.
- ❑ Examine the attic and crawl space to ensure that there are no pest, moisture and structural issues.
- ❑ Check the exterior caulking and paint throughout the siding and around the windows.
- ❑ Examine all exhaust fan duct connections inside the attic to assure that they are well connected and venting to the exterior of the building.
- ❑ Test the water heater expansion/pressure tank to assure that it is not water-logged.

PREVENTION IS THE BEST APPROACH

Although we've heard it many times, nothing could be truer 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!

SERVICE WALKS/DRIVEWAYS

Spalling concrete cannot be patched with concrete because the new will not bond with the old. Water will freeze between the two layers, or the concrete will break up from movement or wear. Replacement of the damaged section is recommended. Walks or driveways that are close to the property should be properly pitched away to direct water away from the foundation. Asphalt driveways should be kept sealed and larger cracks filled so as to prevent damage from frost.

PATIOS

that have settled towards the structure should be mudjacked or replaced to assure proper pitch. Improperly pitched patios are one source of wet basements/crawlspaces.

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

Decks should always be nailed with galvanized, stainless steal or aluminum nails. Decks that are not painted or stained should be treated with a water sealer.

GRADING AND DRAINAGE

Any system of grading or landscaping that creates positive drainage (moving water away from the foundation walls) will help to keep a basement and crawlspace dry. Where negative grade exists and additional backfill is suggested, it may require digging out around the property to get a proper pitch. Dirt shall be approximately 6” below the bottom sill and should not touch wood surfaces.

Flower beds, loose mulched areas, railroad ties and other such landscaping items close to the foundation trap moisture and contribute to wet basements. To establish a positive grade, a proper slope away from the house is 1” per foot for approximately 5-6 feet. Recommend ground cover planting or grass up to foundation.

ROOF AND SURFACE WATER CONTROL

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

WINDOW WELLS

The amount of water which enters a window well from falling rain is generally slight, but water will accumulate in window wells if the yard is improperly graded. Plastic window well covers are useful in keeping out leaves and debris.

RETAINING WALLS

Retaining walls deteriorate because of excessive pressure buildup behind them, generally due to water accumulation. Conditions can often be improved by excavating a trench behind the retaining wall and filling it with coarse gravel. Drain holes through the wall will then be able to relieve the water pressure.

Retaining walls sometime suffer from tree root pressure or from general movement of topsoil down the slope. Normally, these conditions require rebuilding the retaining wall.

RAILINGS

It is recommended that railings be installed for any stairway over 3 steps and porches over 30” for safety reasons. Balusters for porches, balconies, and stairs should be close enough to assure children cannot squeeze through.

Valleys and Flashings that are covered with shingles and/or tar or any other material are considered not visible and are not part of the inspection.

Tar and Gravel Roofs - This type of covering on a pitched roof requires ongoing annual maintenance. We recommend that a roofing contractor evaluate this type of roof. Infra-red photography is best used to determine areas of potential leaks.

Flat roofs are very vulnerable to leaking. It is very important to maintain proper drainage to prevent the ponding of water. We recommend that a roofing contractor evaluate this type of roof.

ROOF TYPE	LIFE EXPECTANCY	SPECIAL REMARKS
Three Tab Composition Shingles	15-20 years	Used on nearly 80% of all residential roofs; requires little maintenance.
*Architectural Composition Multi-Thickness Shingles**	25-30 years	Heavier and more durable than regular asphalt shingles.
*Composition Interlocking. Shingles**	15-25 years	Especially good in high-wind areas.
Composition Rolls	10 years	Used on low slope roofs.
Built-up Roofing	10-20 years	Used on low slope roofs; 2 to 3 times as costly as asphalt shingles.
*Wood Shingles**	10-40 years[1]	Treat with preservative every 5 years to prevent decay.
*Clay Tiles**, *Cement Tiles**	20 + years 20 + years	Durable, fireproof, but not watertight, * requiring a good subsurface base.
*Slate Shingles**	30-100 years [2]	Extremely durable, but brittle and expensive.
*Asbestos Cement Shingles**	30-75 years	Durable, but brittle and difficult to repair.
Metal Roofing	20-40 + years	Comes in sheets & shingles; should be well grounded for protection from lightning; certain metals must be painted.
Single Ply	15-25 years	New material; not yet passed test of time.
Membrane (mfgr's claim) *Polyurethane with Elastomenic* Coating	5-10 years [1]	Used on low slope roofs.

* Not recommended for use on low slope roof
[1] Depending on local conditions and proper installation
[2] Depending on quality of slate

Roof coverings should be visually checked in the spring and fall for any visible missing shingles, damaged coverings 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.

Wood shakes and shingles will 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 deterioration.

CHIMNEYS
Chimneys built of masonry will eventually need tuckpointing. A cracked chimney top that allows water and carbonic acid to get behind the surface brick/stone will accelerate the deterioration. Moisture will also deteriorate the clay flue liner. Periodic chimney cleaning will keep you apprised of the chimney's condition. The flashing around the chimney may need resealing and should be inspected every year or two. Fireplace chimneys should be inspected and evaluated by a chimney professional before using. Chimneys must be adequate height for proper drafting. Spark arrestors are recommended for a wood burning chimney, and chimney caps for fossil fuels. **Unlined Chimney** - should be re-evaluated by a chimney technician. Have flue cleaned and re-evaluated. The flue lining is covered with soot or creosote and no representation can be made as to the condition.

NOT EVALUATED
The flue was not evaluated due to inaccessibility such as roof pitch, cap, cleanout not accessible, etc.

CRICKET FLASHING
Small, sloped structure made of metal and designed to drain moisture away from a chimney. Usually placed at the back of a chimney.

GUTTERS AND DO
This is an extremely important element in basement/crawlspace dampness control. Keep gutters clean and downspout extensions in place (4' or more). Paint the inside of galvanized gutters, which will extend the life. Shortly after a rain or thaw in winter, look for leaks at seams in the gutters. These can be recaulked before they cause damage to fascia or soffit boards. If no gutters exist, it is recommended that they be added.

SIDING
Wood siding should not come in contact with the ground. The moisture will cause rotting to take place and can attract carpenter ants. See page 34 for siding that have known problems, but are not always recognizable. 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 products on the market that can be used to seal out the moisture. This holds true for brick and stone chimneys also. Metal siding will 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.

EIFS This type of siding is a synthetic stucco and has experienced serious problems. It requires a certified EIFS inspector to determine condition.

DOORS AND WINDOWS
These can waste an enormous amount of energy. Maintain the caulking around the frames on the exterior. Check for drafts in the winter and improve the worst offenders first. Windows that have leaky storm windows will usually have a lot of sweating. Likewise, well-sealed storms that sweat indicate a leaky window. It is the tighter unit that will sweat (unless the home has excess humidity to begin with).

Wood that exhibits blistering or peeling paint should be examined for possible moisture sources: roof leaks, bad gutters, interior moisture from baths or laundry or from a poorly vented crawl space. Some paint problems have no logical explanation, but many are a symptom of an underlying problem. A freshly painted house may mask these symptoms, but after you have lived in the home for a year or two, look for localized paint blistering (peeling). It may be a clue.
New glazing will last longer if the raw wood is treated with boiled linseed oil prior to glazing. It prevents the wood from drawing the moisture out of the new glazing.

CAULKING
Many different types of caulk are available on the market today. Check with a paint or hardware store for the kind of application you need.

OVERHEAD DOOR OPENERS
We recommend that a separate electrical outlet be provided. Openers that do not have a **safety reverse** are considered a safety hazard. Small children and pets are especially vulnerable. We recommend the operating switches be set high enough so children cannot reach them. If a electric sensor is present, it should be tested occasionally to ensure it is working.

GARAGE SILL PLATES should be elevated or treated lumber should be used. If this is not the case, try to direct water away to prevent rotting.

BURNERS
Any appliance such as a water heater, furnace, etc. should have the flame a minimum of 18" above the floor. Any open flame less

PLASTER ON WOOD LATH
Plaster on wood lath is an old technique and is no longer in general use. Wood lath shrinks with time and the nails rust and loosen. As a result, the plaster may become fragile and caution is needed in working with this type of plastering system. Sagging ceilings are best repaired by laminating drywall over the existing plaster and screwing it to the ceiling joists.

PLASTER ON GYPSUM LATH (ROCK LATH)
Plaster on gypsum lath will sometimes show the seams of the 16” wide gypsum lath, but this does not indicate a structural fault. The scalloping appearance can be leveled with drywall joint compound and fiberglass mesh joint tape or drywall can be laminated over the existing plaster on the ceiling.

WOOD FLOORING
Always attempt to clean wood floors first before making the decision to refinish the floor. Wax removers and other mild stripping agents plus a good waxing and buffing will usually produce satisfactory results. Mild bleaching agents help remove deep stains. Sanding removes some of the wood in the floor and can usually be done safely only once or twice in the life of the floor.

NAIL POPS
Drywall nail pops are due to normal expansion and contraction of the wood members to which the drywall is nailed and are usually of no structural significance.

CARPETING
Where carpeting has been installed, the materials and condition of the floor underneath cannot be determined.

APPLIANCES (If report indicated appliances were operated, the following applies) Dishwashers are tested to see if the motor operates and water sprays properly. Stoves are tested to see that burners are working and oven and broiler get hot. Timer and controls are not tested. Refrigerators are not tested. Most new Dishwashers have the drain line looped automatically and may not be visible on the day of inspection. It is essential for the dishwasher drain line to have an anti-siphon break to prevent backflow. A drain line loop or Dishwasher air gap should be installed if found to be missing. No representation is made to continued life expectancy of any appliance.

ASBESTOS AND OTHER HAZARDS
Asbestos fibers in some form are present in many homes, but are often not visible and cannot be identified without testing.

If there is reason to suspect that asbestos may be present and if it is of particular concern, a sample of the material in question may be removed and analyzed in a laboratory. However, detecting or inspecting for the presence or absence of asbestos is not a part of our inspection.

Also excluded from this inspection and report are the possible presence of, or danger from, radon gas, lead-based paint, urea formaldehyde, toxic or flammable chemicals and all other similar or potentially harmful substances and environmental hazards.

WINDOWS
A representative number of windows are inspected.

STALL SHOWER

The metal shower pan in a stall shower has a potential or probable life of 10-20 years depending on quality of the pan installed. Although a visible inspection is made to determine whether a shower pan is currently leaking, it cannot be stated with certainty that no defect is present or that one may not soon develop. Shower pan leaks often do not show except when the shower is in actual use.

CERAMIC TILE

Bathroom tile installed in a mortar bed is excellent. It is still necessary to keep the joint between the tile and the tub/shower caulked or sealed to prevent water spillage from leaking through and damaging the ceilings below.

Ceramic tile is often installed in mastic. It is important to keep the tile caulked or water will seep behind the tile and cause deterioration in the wallboard. Special attention should be paid to the area around faucets and other tile penetrations.

EXHAUST FANS

Bathrooms with a shower should have exhaust fans when possible. This helps to remove excess moisture from the room, preventing damage to the ceiling and walls and wood finishes. The exhaust fan should not be vented into the attic. The proper way to vent the fan(s) is to the outside. Running the vent pipe horizontally and venting into a gable end or soffit is preferred. Running the vent pipe vertically through the roof may cause condensation to run down the vent pipe, rusting the fan and damaging the wallboard. Insulating the vent pipe in the attic will help to reduce this problem.

SLOW DRAINS on sinks, tubs, and showers are usually due to build up of hair and soap scum. Most sink popups can be easily removed for cleaning. Some tubs have a spring attached to the closing lever that acts as a catch for hair. It may require removing a couple of screws to disassemble. If you cannot mechanically remove the obstruction, be kind to your pipes. ***Don't use a caustic cleaner***. There are several bacteria drain cleaners available. They are available at hardware stores in areas where septic tanks are used. These drain cleaners take a little longer to work, but are safe for you and your pipes.

SAFETY HAZARDS

Typical safety hazards found in bathrooms are open grounds or reverse polarity by water. Replacing these outlets with G.F.C.I.'s are recommended. (See page 28)

WHIRLPOOL TUBS

This relates to interior tubs hooked up to interior plumbing. Where possible, the motor will be operated to see that the jets are working. Hot tubs and spas are not inspected.

DOOR STOPS

All swinging doors should be checked for door stops. Broken or missing door stops can result in door knobs breaking through drywall or plaster.

CLOSET GUIDES

Sliding closet doors should be checked to see that closet guides are in place. Missing or broken closet guides can cause scratches and damage to doors.

COLD AIR RETURNS

Bedrooms that do not have cold air returns in them should have a 3/4" gap under the doors to allow cold air to be drawn into the hall return.

AN INSPECTION VERSUS A WARRANTY

A home inspection is just what the name indicates, an inspection of a home...usually a home that is being purchased. The purpose of the inspection is to determine the condition of the various systems and structures of the home. While an inspection performed by a competent inspection company will determine the condition of the major components of the home, no inspection will pick up every minute latent defect. The inspector's ability to find all defects is limited by access to various parts of the property, lack of information about the property and many other factors. A good inspector will do his or her level best to determine the condition of the home and to report it accurately. The report that is issued is an opinion as to the condition of the home. This opinion is arrived at by the best technical methods available to the home inspection industry. It is still only an opinion.

A warranty is a policy sold to the buyer that warrants that specific items in the home are in sound condition and will remain in sound condition for a specified period of time. Typically, the warranty company never inspects the home. The warranty company uses actuarial tables to determine the expected life of the warranted items and charges the customer a fee for the warranty that will hopefully cover any projected loss and make a profit for the warranty seller. It is essentially an insurance policy.

The service that we have provided you is an inspection. We make no warranty of this property. If you desire warranty coverage, please see your real estate agent for details about any warranty plan to which their firm may have access.

WINDOW FRAMES AND SILLS

Window frames and sills are often found to have surface deterioration due to condensation that has run off the window and damaged the varnish. Usually this can be repaired with a solvent style refinisher and fine steel wool. This is sometimes a sign of excess humidity in the house. See comments regarding caulking doors and windows, page 8.

FIREPLACES

It is important that a fireplace be cleaned on a routine basis to prevent the buildup of creosote in the flue, which can cause a chimney fire. Masonry fireplace chimneys are normally required to have a terra cotta flue liner or 8 inches of masonry surrounding each flue in order to be considered safe and to conform with most building codes. During visual inspections, it is not uncommon to be unable to detect the absence of a flue liner either because of stoppage at the firebox, a defective damper or lack of access from the roof.

WOODBURNERS

Once installed, it can be difficult to determine proper clearances for woodburning stoves. Manufacturer specifications, which are not usually available to the inspector, determine the proper installation. We recommend you ask the owner for paperwork, verifying that it was installed by a professional contractor.

VENTILATION

Ventilation is recommended at the rate of one square foot of vent area to 300 square feet of attic floor space, this being divided between soffit and rooftop. Power vents should ideally have both a humidistat and a thermostat, since ventilation is needed to remove winter moisture as well as summer heat. Evidence of condensation such as blackened roof sheathing, frost on nail heads, etc. is an indication that ventilation may have been or is blocked or inadequate.

INSULATION

The recommended insulation in the attic area is R-38, approximately 12”. If insulation is added, it is important that the ventilation is proper.

SMOKE DETECTORS

Smoke detectors should be tested monthly. At least one detector should be on each level. CO detectors are not required by most states, but for safety reasons, are highly recommended.

VAPOR BARRIERS

The vapor barrier should be on the warm side of the surface. Most older homes were built without vapor barriers. If the vapor barrier is towards the cold side of the surface, it should be sliced or removed. Most vapor barriers in the attic are covered by insulation and therefore, not visible.

SAFETY GLAZING

Safety glazing requirements vary depending on the age of the home. Every attempt is made to identify areas where the lack of safety glazing presents an immediate safety hazard, such as a shower door. In some older homes it is difficult to determine if safety glazing is present, since the glass is not marked. Therefore, no representation is made that safety glazing exists in all appropriate areas.

INSULATED GLASS

Broken seal in thermopane/insulated windows are not always visible nor detectible due to humidity and temperature changes during the day. Other factors such as window covering, dirty windows, and lack of accessibility, personal property placed in front of the windows all affect the view of the windows at the time of the inspection.

BASEMENT/CRAWLSPACE
Any basement/crawlspace that has cracks or leaks is technically considered to have failed. Most block basements/crawlspace have step cracks in various areas. If little or no movement has occurred and the step cracks are uniform, this is considered acceptable. Horizontal cracks in the third or fourth block down indicate the block has moved due to outside pressure. They can be attributed to many factors such as improper grading, improperly functioning gutter and downspout system, etc. Normally if little or no movement has taken place and proper grading and downspouts exist, this is considered acceptable. If the wall containing the stress crack(s) has moved considerably, this will require some method of reinforcement. Basements/crawlspace that have been freshly painted or tuckpointed should be monitored for movement. This will be indicated by cracks reopening. If cracks reappear, reinforcement may be necessary. Reinforcing a basement/crawlspace wall can become expensive.

FOUNDATION (COVERED WALLS)
Although an effort has been made to note any major inflections or weaknesses, it is difficult at best to detect these areas when walls are finished off, or basement/crawlspace storage makes areas inaccessible. **No representation is made as to the condition of these walls.**

INSULATED CONCRETE FORMS (ICF'S) are formwork for concrete that stays in place as permanent building insulation for energy-efficient, cast-in-place, reinforced concrete walls, floors and roofs.

MONITOR indicates that the walls have stress cracks, but little movement has occurred. In our opinion, the cracks should be filled with mortar and the walls monitored for further movement and cracking. If additional movement or cracking occurs, reinforcement may be necessary.

HAVE EVALUATED We recommend that the walls be re-evaluated by a structural engineer or basement/crawlspace repair company and estimates be obtained if work is required.

VAPOR BARRIER
Floors that are dirt or gravel should be covered with a vapor barrier.

MOISTURE PRESENT
Basement/crawlspace dampness is frequently noted in houses and in most cases the stains, moisture or efflorescence present is a symptom denoting that a problem exists outside the home. Usual causes are improper downspout extensions or leaking gutters and/or low or improper grade (including concrete surfaces) at the perimeter of the house. A proper slope away from the house is one inch per foot for four to six feet. Expensive solutions to basement/crawlspace dampness are frequently offered. It is possible to spend thousands of dollars on solutions such as pumping out water that has already entered or pumping of chemical preparations into the ground around the house, when all that may be necessary are a few common sense solutions at the exterior perimeter. However, this is not intended to be an exhaustive list of causes and solutions to the presence of moisture.
No repre-sentation is made to future moisture that may appear.

PALMER VALVE
Many older homes have a valve in the floor drain. This drain needs to remain operational.

DRAIN TILE
We offer no opinion about the existence or condition of the drain tile, as it cannot be visibly inspected.

BASEMENT ELECTRICAL OUTLETS
We recommend that you have an outlet within 6' of each appliance. The appliance you plan to install may be different than what exists, therefore the inspection includes testing a representative number of receptacles that exist. It is also recommended to have ground fault circuit interrupts for any outlet in the unfinished part of the basement and crawl spaces.

CRAWL SPACES

Crawl spaces are shallow spaces between the first level floor joist and the ground. Access to this area may be from the inside, outside or not accessible at all. Ductwork, plumbing, and electrical may be installed in the space in which access may be necessary. The floor of the crawl space may be covered with concrete, gravel, or may be the original soil. A vapor barrier may be a sheet of plastic or tar paper and installed over or under this material. The vapor barrier will deter the moisture from the earth from escaping into the crawl space and causing a musty smell. Ventilation is also important to control excess moisture buildup. Vents may be located on the outside of the house and are normally kept open in the summer and closed for the winter (where freezing may occur). The basement/crawl space diagram indicates areas that are covered and not part of a visual inspection. Every attempt is made to determine if paneling is warped, moisture stains are bleeding through, etc. Storage that blocks the visibility of a wall is not removed to examine that area. Therefore, it is important that on your walk-through before closing, you closely examine these areas. Closed crawl spaces that have vents to the outside should have insulation under the floor above the crawl space.

HAVE EVALUATED

We recommend that the walls be re-evaluated by a structural engineer or basement repair company and estimates be obtained if work is required.

MONITOR

Indicates that the walls have stress cracks, but little movement has occurred. In our opinion, the cracks should be filled with mortar and the walls monitored for further movement and cracking. If additional movement or cracking occurs, reinforcement may be necessary.

FOUNDATION (COVERED WALLS)

Although an effort has been made to note any major inflections or weaknesses, it is difficult at best to detect these areas when walls are finished off, or basement/crawlspace storage makes areas inaccessible. **No representation is made as to the condition of these walls.**

MOISTURE PRESENT

Basement/crawlspace dampness is frequently noted in houses and in most cases the stains, moisture or efflorescence present is a symptom denoting that a problem exists outside the home. Usual causes are improper downspout extensions or leaking gutters and/or low or improper grade (including concrete surfaces) at the perimeter of the house. A proper slope away from the house is one inch per foot for four to six feet. Expensive solutions to basement/crawlspace dampness are frequently offered. It is possible to spend thousands of dollars on solutions such as pumping out water that has already entered or pumping of chemical preparations into the ground around the house, when all that may be necessary are a few common sense solutions at the exterior perimeter. However, this is not intended to be an exhaustive list of causes and solutions to the presence of moisture.

No repre-sentation is made to future moisture that may appear.

WELLS

Examination of wells is not included in this visual inspection. It is recommended that you have well water checked for purity by the local health authorities and, if possible, a check on the flow of the well in periods of drought. A well pit should have a locked cover on it to prevent anyone from falling into the pit.

SEPTIC SYSTEMS

The check of septic systems is not included in our visual inspection. You should have the local health authorities or other qualified experts check the condition of the septic system. In order for the septic system to be checked, the house must have been occupied within the last 30 days.

WATER PIPES

Galvanized water pipes rust from the inside out and may have to be replaced within 20 to 30 years. This is usually done in two stages: horizontal piping in the basement first, and vertical pipes throughout the house later as needed. Copper pipes usually have more life expectancy and may last as long as 60 years before needing to be replaced.

HOSE BIBS

During the winter months it is necessary to make sure the outside faucets are winterized. This can be done by means of a valve located in the basement. Leave the outside faucets open to allow any water standing in the pipes to drain, preventing them from freezing. Hose bibs cannot be tested when winterized.

WATER HEATER

The life expectancy of a water heater is 5-10 years. Water heaters generally need not be replaced unless they leak. It is a good maintenance practice to drain 5-10 gallons from the heater several times a year. Missing relief valves or improper extension present a safety hazard.

WATER SOFTENERS

During a visual inspection it is not possible to determine if water is being properly softened.

PLUMBING

The temperature/pressure valve should be tested several times a year by lifting the valve’s handle. Caution: very hot water will be discharged. If no water comes out, the valve is defective and must be replaced.

SHUT-OFF VALVES

Most shut-off valves have not been operated for long periods of time. We recommend operating each shut-off valve to: toilet bowl, water heater, under sinks, main shut-off, hose faucets, and all others. We recommend you have a plumber do this, as some of the valves may need to be repacked or replaced. Once the valves are in proper operating order, we recommend opening and closing these valves several times a year.

POLYBUTYLENE PIPING

This type of piping has a history of problems and should be examined by a licensed plumber and repaired or replaced as necessary.

MECHANICAL DEVICES MAY OPERATE AT ONE MOMENT AND LATER MALFUNCTION; THEREFORE, LIABILITY IS SPECIFICALLY LIMITED TO THOSE SITUATIONS WHERE IT CAN BE CONCLUSIVELY SHOWN THAT THE MECHANICAL DEVICE INSPECTED WAS INOPERABLE OR IN THE IMMEDIATE NEED OF REPAIR OR NOT PERFORMING THE FUNCTION FOR WHICH IS IT WAS INTENDED AT THE TIME OF INSPECTION.

CSST

Corrugated Stainless Steel Tubing is an alternative to traditional black iron gas piping. It is a continuous, flexible, stainless steel pipe with an exterior PVC covering.

HEATING AND AIR CONDITIONING units have limited lives. Normal lives are:

GAS-FIRED HOT AIR . . . . . .15-25 years
OIL-FIRED HOT AIR . . . . . .20-30 years
CAST IRON BOILER . . . . . .30-50 years
(Hot water or steam) or more
STEEL BOILER . . . . . .30-40 years
(Hot water or steam) or more
COPPER BOILER . . . . . .10-20 years
(Hot water or steam)
CIRCULATING PUMP (Hot water) . . . . . .10-15 years
AIR CONDITIONING COMPRESSOR . . . .8-12 years
HEAT PUMP . . . .8-12 years
DUAL HEAT PUMP……8-15 years
MINI SPLIT HEAT PUMP……..10-15 years

Gas-fired hot air units that are close to or beyond their normal lives have the potential of becoming a source of carbon monoxide in the home. You may want to have such a unit checked every year or so to assure yourself that it is still intact. Of course a unit of such an age is a good candidate for replacement with one of the new, high efficiency furnaces. The fuel savings alone can be very attractive.

Boilers and their systems may require annual attention. If you are not familiar with your system, have a heating contractor come out in the fall to show you how to do the necessary thing **Caution: do not add water to a hot boiler!**

Forced air systems should have filters changed every 30 to 60 days of the heating and cooling season. This is especially true if you have central air conditioning. A dirty air system can lead to premature failure of your compressor - a $1,500 machine.

Oil-fired furnaces and boilers should be serviced by a professional each year. Most experts agree you will pay for the service cost in fuel saved by having a properly tuned burner.

Read the instructions for maintaining the humidifier on your furnace. A malfunctioning humidifier can rust out a furnace rather quickly. It is recommended that the humidifier be serviced at the same time as the furnace, and be cleaned regularly. **During a visual inspection it is not possible to determine if the humidifier is working.**

Have HVAC technician examine - A condition was found that suggests a heating contractor should do a further analysis. We suggest doing this before closing.

Heat exchangers cannot be examined nor their condition determined without being disassembled. Since this is not possible during a visual, non-technically exhaustive inspection, you may want to obtain a service contract on the unit or contact a furnace technician regarding a more thorough examination.

Testing pilot safety switch requires blowing out the pilot light. Checking safety limit controls requires disconnecting blower motor or using other means beyond the scope of this inspection. If the furnace has not been serviced in last 12 months you may want to have a furnace technician examine.

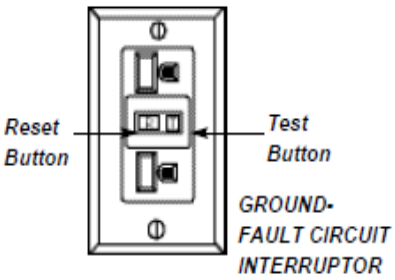
CO Test - This is not part of a non-technical inspection. If a test was performed, the type of tester is indicated on page 27.

Combustible Gas Detector - If a gas detector was used during the inspection of the furnace and evidence of possible combustible gases was noted, we caution you that our test instrument is sensitive to many gases and not a foolproof test. None-the-less, this presents the possibility that a hazard exists and could indicate that the heat exchanger is, or will soon be, defective.

Every effort has been made to evaluate the size of the service. Three wires going into the home indicate 240 volts. The total amperage can be difficult to determine. We highly recommend that ground fault circuit interrupters (G.F.C.I.) be connected to all outlets around water. This device automatically shuts the circuit off when it senses a current leak to ground. This device can be purchased in most hardware stores. G.F.C.I.'s are recommended by all outlets located near water, outside outlets, or garage outlets. Pool outlets should also be protected with a G.F.C.I.

See diagram below:

If you do have G.F.C.I.'s, it is recommended that you test (and reset) them monthly. When you push the test button, the reset button should pop out, shutting off the circuit. If it doesn't, the breaker is not working properly. If you don't test them once a month, the breakers have a tendency to stick and may not protect you when eeded.



Knob and tube wiring found in older homes should be checked by an electrician to insure that the wire cover is in good condition. Under no circumstances should this wire be covered with insulation. Recess light fixtures should have a baffle around them so that they are not covered with insulation. The newer recessed fixtures will shut off if they overheat. (no representation is made as to proper recess lighting fixtures).

Federal Pacific Stab-Lok® Electrical panels may be unsafe. See www.google.com (Federal Pacific)

Aluminum wiring in general lighting circuits has a history of over heating, with the potential of a fire. If this type of wiring exists, a licensed electrical contractor should examine the whole system.

ARC FAULTS

In some areas arc Faults are required for bedrooms in new homes starting in 2002. In some areas arc Faults are required for all 120 Volt circuits that are not GFCI protected in new homes starting in 2009. Updrade as desired forenhanced safely.

REVERSE POLARITY

A common problem that surfaces in many homes is reverse polarity. This is a potentially hazardous situation in which the hot and neutral wires of a circuit are reversed at the outlet, thereby allowing the appliance to incorrectly be connected. This is an inexpensive item to correct.

Each receptacle has a brass and silver screw. The black wire should be wired to the brass screw and the white wire should go to the silver screw. When these wires are switched, this is called "reverse polarity." Turning off the power and switching these wires will correct the problem.

Main service wiring for housing is typically 240 volts. The minimum capacity for newer homes is 100 amps though many older homes still have 60 amp service. Larger homes or all electric homes will likely have a 200 amp service.

Main service wiring may be protected by one or more circuit breakers or fuses. While most areas allow up to six main turnoffs, expanding from these panels is generally not allowed.

COOLING

Testing A/C System and Heat Pump- The circuit breakers to A/C should be on for a minimum of 24 hours and the outside temperature at least 60 degrees for the past 24 hours or an A/C system cannot be operated without possible damage to the compressor. Check the instructions in your A/C manual or on the outside compressor before starting up in the summer. Heat pump can only be tested in the mode it's running in. Outside temperature should be at least 65° for the past 24 hours to run in cooling mode.

Temperature differential, between 14°-22°, is usually acceptable. If out of this range, have an HVAC contractor examine it. It is not always feasible to do a differential test due to high humidity, low outside temperature, etc.

A/C CONDENSER COIL They should not become overgrown with foliage. Clearance requirements vary, but 2' on all sides should be considered minimal with up to 6' of air discharge desirable. If a clothes dryer vent is within five to ten feet, either relocate the vent or do not run when the A/C is running. The lint will quickly reduce the efficiency of the A/C unit.

APROXIMATE COSTS OF REMODELING OR REPAIR

The prices quoted below include a range of prices based on a typical metropolitan area. Individual prices from contractors can vary substantially from these ranges. We advise that several bids be obtained on any work exceeding several hundred dollars. DO NOT RELY ON THESE PRICES... GET FURTHER ESTIMATES.

ITEM	UNIT	ESTIMATED PRICE
Masonry fireplace	Each	$3,000 - $6,000
Install prefab fireplace	Each	2,000 - 4,000
Insulate attic	Square foot	.75 - 1.25
Install attic ventilating fan	Each	200 - 300
Install new drywall over plaster	Square foot	1.75 - 2.75
Install new warm air furnace	Each	2,000 - 3,000
Replace central air conditioning	Each	1,400 - 2,000
Install humidifier	Each	300 - 500
Install electrostatic air cleaner	Each	800 - 1,500
Increase elec. svc. to 60-100 amps	Each	600 - 1,200
Run separate elec. line for dryer	Each	125 - 200
Run separate elec. line for A/C	Each	135 - 200
Install hardwired smoke detector	Each	100 - 180
Install new disposal	Each	250 - 400
Install new dishwasher	Each	500 - 750
Install new hot water boiler	Each	2,000 - 4,000
Install new 30-40 gal water heater	Each	350 - 650
Install new 30 gal. water heater	Each	300 - 500
Dig and install new well	Each	get estimate
Install new septic system	Each	get estimate
Regrade around exterior	Each	500 - 900
Install new sump pump and pit	Each	400 - 600
Build new redwood or pressure-treated deck	Square foot	20 - 30
Install storm windows	Each	60 - 150
Install wood replacement windows	Each	400 - 800
Install aluminum or vinyl	Each	300 - 800
Replacement window	Each	get estimate
Install new gutters and downspouts	Linear foot	3.50 - 5.00
Install asphalt shingle o/existing	Square foot	1.20 - 1.70
Tear off existing roof and install new asphalt shingle roof	Square foot	2.50 - 4.00
Install 1-ply membrane rubberized roof	Square foot	get estimate
Install new 4-ply built-up tar & gravel	Square foot	get estimate
Remove asbestos from pipes in bsmt	Linear foot	get estimate
Concrete drive or patio	Square foot	4.00 - 6.00
with removal of old	Square foot	3.25 - 4.00
Clean chimney flue	Each	100 - 200
Add flue liner for gas fuel		1,200 - 1,900
Add flue liner for oil or wood		2,800 - 3,500

Deferred Costs - It is impossible to determine how long these items will last before needing replacement. The report addresses most of these items from a “condition” standpoint.

PREVENTIVE MAINTENANCE TIPS

I. **FOUNDATION and MASONRY: Basements, Exterior Walls**: To prevent seepage and condensation problems.
a. Check basement for dampness and leakage after wet weather.
b. Check chimneys, deteriorated chimney caps, loose and missing mortar.
c. Maintain grading sloped away from foundation walls.

II. **ROOFS, GUTTERS, and EAVESTROUGH:** To prevent roof leaks, condensation, seepage, and decay problems.
a. Check for damaged, loose or missing shingles, blisters.
b. Clean gutters, leaders, strainers, window wells, drains. Be sure downspouts direct water away from foundation. Cut back tree limbs.
c. Check flashings around roof stacks, vents, skylights, chimneys, as sources of leakage. Check vents, louvers and chimneys for birds nests, squirrels, insects.
d. Check fascias and soffits for paint flaking, leakage and decay.

III. **EXTERIOR WALLS:** To prevent paint failure, decay, and moisture penetration problems.
a. Check painted surface for paint flaking or paint failure. Cut back shrubs.
b. Check exterior masonry walls for cracks, looseness, missing or broken mortar.

IV. **DOORS AND WINDOWS:** To prevent air and weather penetration problems.
a. Check caulking for decay around doors, windows, corner boards, joints. Recaulk and weatherstrip as needed. Check glazing, putty around windows.

V. **ELECTRICAL:** For safe electrical performance, mark and label each circuit.
a. Trip circuit breakers every six months and ground fault circuit interrupters (G.F.C.I.) monthly.
b. Check condition of lamp cords, extension cords and plugs. Replace at first sign of wear and damage.
c. Check exposed wiring and cable for wear or damage.
d. If you experience slight tingling shock from handling or touching any appliance, disconnect the appliance and have it repaired. If lights flicker or dim, or if appliances go on and off unnecessarily, call a licensed electrician.

VI. **PLUMBING:** For preventive maintenance.
a. Drain exterior water lines, hose bibbs, sprinklers, pool equipment in the fall.
b. Draw off sediment in water heaters monthly or per manufacturer's instructions.
c. Have septic tank cleaned every 2 years.

VII. **HEATING and COOLING:** For comfort, efficiency, energy conservation and safety.
a. Change or clean furnace filters, air condition filters, electronic filters as needed.
b. Clean and service humidifier. Check periodically and annually.
c. Have oil burning equipment serviced annually.

VIII. **INTERIOR:** General house maintenance.
a. Check bathroom tile joints, tub grouting and caulking. Be sure all tile joints in bathrooms are kept well sealed with tile grout to prevent damage to walls, floors and ceilings below.
b. Close crawl vents in winter and open in summer.
c. Check underside of roof for water stains, leaks, dampness & condensation, particularly in attics and around chimneys.

IX. Know the location of:

• Main water shutoff valve.
• Main emergency shutoff switch for the heating system.
• Main electrical disconnect or breaker.

Information about Carbon Monoxide

What is carbon monoxide (CO) and how is it produced in the home?

CO is a colorless, odorless, toxic gas. It is produced by the incomplete combustion of solid, liquid and gaseous fuels. Appliances fueled with gas, oil, kerosene, or wood may produce CO. If such appliances ar not installed, maintained, and used properly, CO may accumulate to dangerous levels.

What are the symptoms of CO poisoning and why are these symptoms particularly dangerous?

Breathing CO causes symptoms such as headaches, dizziness, and weakness in healthy people. CO also causes sleepiness, nausea, vomiting, confusion and disorientation. At very high levels, it causes loss of consciousness and death.

This is particularly dangerous because CO effects often are not recognized. CO is odorless and some of the symptoms of CO poisoning are similar to the flu or other common illnesses.

Are some people more affected by exposure to CO than others?

CO exposures especially affect unborn babies, infants, and people with anemia or a history of heart disease. Breathing low levels of the chemical can cause fatigue and increase chest pain in people with chronic heart disease.

How many people die from CO poisoning each year?

In 1989, the most recent year for which statistics are available, thee were about 220 deaths from CO poisoning associated with gas-fired appliances, about 30 CO deaths associated with solid-fueled appliances (including charcoal grills), and about 45 CO deaths associated with liquid- fueled heaters.

How many people are poisoned from CO each year?

Nearly 5,000 people in the United States are treated in hospital emergency rooms for CO poisoning; this number is believed to be an underestimate because many people with CO symptoms mistake the symptoms for the flu or are misdiagnosed and never get treated.

How can production of dangerous levels of CO be prevented?

Dangerous levels of CO can be prevented by proper appliance maintenance, installation, and use:

Maintenance:

- A qualified service technician should check your home's central and room heating appliances (including water heaters and gas dryers) annually. The technician should look at the electrical and mechanical components of appliances, such as thermostat controls and automatic safety devices.
- Chimneys and flues should be checked for blockages, corrosion, and loose connections.
- Individual appliances should be serviced regularly. Kerosene and gas space heaters (vented and unvented) should be cleaned and inspected to insure proper operation.
- CPSC recommends finding a reputable service company in the phone book or asking your utility company to suggest a qualified service technician.

Installation:

- Proper installation is critical to the safe operation of combustion appliances. All new appliances have installation instructions that should be followed exactly. Local building codes should be followed as well.
- Vented appliances should be vented properly, according to manufacturer's instructions.
- Adequate combustion air should be provided to assure complete combustion.
- All combustion appliances should be installed by professionals.

Appliance Use:

Follow manufacturer's directions for safe operation.

- Make sure the room where an unvented gas or kerosene space heater is used is well ventilated; doors leading to another room should be open to insure proper ventilation.
- Never use an unvented combustion heater overnight or in a room where you are sleeping.

Are there signs that might indicate improper appliance operation?

Yes, these are:

- Decreasing hot water supply
- Furnace unable to heat house or runs constantly
- Sooting, especially on appliances
- Unfamiliar or burning odor
- Increased condensation inside windows

Are there visible signs that might indicate a CO problem?

Yes, these are:

- Improper connections on vents and chimneys
- Visible rust or stains on vents and chimneys
- An appliance that makes unusual sounds or emits an unusual smell
- An appliance that keeps shutting off (Many new appliances have safety components attached that prevent operation if an unsafe condition exists. If an appliance stops operating, it may be because a safety device is preventing a dangerous condition. Therefore, don't try to operate an appliance that keeps shutting off; call a service person instead.)

Are there other ways to prevent CO poisoning?

Yes, these are:

- Never use a range or oven to heat the living areas of the home
- Never use a charcoal grill or hibachi in the home
- Never keep a car running in an attached garage

Can CO be detected?

Yes, CO can be detected with CO detectors that meet the requirements of Underwriters Laboratories (UL) standard 2034.

Since the toxic effect of CO is dependent upon both CO concentration and length of exposure, long-term exposure to a low concentration can produce effects similar to short term exposure to a high concentration.

Detectors should measure both high CO concentrations over short periods of time and low CO concentrations over long periods of time - the effects of CO can be cumulative over time. The detectors also sound an alarm before the level of CO in a person's blood would become crippling. CO detectors that meet the UL 2034 standard currently cost between $35 and $80.

Where the detector should be installed?

CO gases distribute evenly and fairly quickly throughout the house; therefore, a CO detector should be installed on the wall or ceiling in sleeping area/s but outside individual bedrooms to alert occupants who are sleeping.

Aren't there safety devices already on some appliances? And if so, why is a CO detector needed?

Vent safety shutoff systems have been required on furnaces and vented heaters sine the late 1980s. They protect against blocked or disconnected vents or chimneys. Oxygen depletion sensors (ODS) have also been installed on unvented gas space heaters since the 1980s. ODS protect against the production of CO caused by insufficient oxygen for proper combustion. These devices (ODSs and vent safety shutoff systems) are not a substitute for regular professional servicing, and many older, potentially CO-producing appliances may not have such devices. Therefore, a CO detector is still important in any home as another line of defense.

Are there other CO detectors that are less expensive?

There are inexpensive cardboard or plastic detectors that change color and do not sound an alarm and have a limited useful life. They require the occupant to look at the device to determine if CO is present. CO concentrations can build up rapidly while occupants are asleep, and these devices would not sound an alarm to wake them.

For additional information, write to the U.S. Consumer Product Safety Commission, Washington, D.C., 20207, call the toll-free hotline at 1-800-638-2772, or visit the website http://www.cpsc.gov