Building Inspection Report

2231 W Wendle Lane St Marcus, WI 53207

Inspection Date:
6/4/2023
Prepared For:
Client

Prepared By:
Highland Home Inspections LLC
Milwaukee, WI 53207
414-736-5498

Report Number:
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Report Overview

THE HOUSE IN PERSPECTIVE

This is an average quality home that has been lacking maintenance somewhat. Apart from the short term need to deal with this lacking maintenance, ***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.

It is recommended that the buyer check with the City for remodeling permits. Almost everything requires a permit (Roofing, siding, decks, windows and doors, plumbing, electrical, HVAC, and foundations). Permits follow the building- when you buy the building you are responsible for all permits, past and present.

CONVENTIONS USED IN THIS REPORT

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

Major Concern: *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: *denotes a condition that is unsafe and in need of prompt attention.*

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

Improve: *denotes improvements which are recommended but not required.*

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

Deferred Cost: *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.

- For the purpose of this report, it is assumed that the house faces south.

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.

MAJOR CONCERNS

- **Major Concern, Repair: Defect:** The installation of the chimney, bath fan vent, plumbing stack, front vestibule, and dormer flashings are incomplete and must be repaired to avoid leaks. It's possible that a warranty claim may be possible if made by the present owner who had the roof installed. The roof should be examined by a roofing contractor and repair/replacement cost estimated. (Roofing)

SAFETY ISSUES

- **Safety Issue:** An outlet has reversed polarity (i.e. it is wired backwards). This outlet and the circuit should be investigated and repaired as necessary.
- **Safety Issue: Defect:** The ground fault circuit interrupter (GFCI) outlet in the garage did not respond correctly to testing during the inspection. This receptacle should be replaced.(Electrical)

REPAIR ITEMS

- **Repair:** The level of ventilation should be improved. It is generally recommended that one (1) square foot of free vent area be provided for every one hundred and fifty (150) square feet of ceiling area. Proper ventilation will help to keep the house cooler during warm weather and extend the life of roofing materials. In cold climates, it will help reduce the potential for ice dams on the roof and condensation within the attic.

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- **Repair: Defect:** Exterior wall cracks above lintel (a lintel is a beam supporting masonry above an opening in a wall) at the north exterior suggests that the lintel has failed. This condition is not uncommon. The lintels should be replaced by a mason. (Structure)
- **Repair:** The grading should be improved to promote the flow of storm water away from the house. This can often be accomplished by the addition or re-grading of top soil. The ground should slope away from the house at a rate of one inch per foot for at least the first ten feet. At least eight (8) inches of clearance should be maintained between soil level and the bottom of exterior wall siding.
- **Repair:** There should be nothing in front of the electrical panel for 36" floor to ceiling. Storage or appliances should be moved or the panels relocated.
- **Repair:** Loose wiring should be secured.
- **Repair:** Wiring exposed on interior finishes should be relocated or protected by a rigid conduit.
- **Repair:** Ungrounded 3-prong outlets should be repaired. In some cases a ground wire may be present in the electrical box and simply needs to be connected. If no ground is present "repair" can be as simple as filling the ground slot with epoxy. Better, since 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.
- **Repair:** Outlets that are loose should be repaired.
- **Repair:** The heating system requires service. There were no service stickers on the furnace unit that indicate this unit has been serviced in the past two years. This should be a regular maintenance item to assure safe, reliable heat. Recommend further evaluation by a licensed HVAC technician.
- **Repair: Defect** The chimney needs to be fire stopped at the basement ceiling around the chimney. This is to prevent fire from spreading from the basement to the attic. This will also help minimize the stack effect of moist air in the basement from entering a roof space/attic. The fire stopping can be 5/8 drywall or sheet metal, caulked, around the chimney to seal it. (Heating)
- **Repair:** The waste piping below the kitchen sink does not have sufficient slope for proper drainage.

IMPROVEMENT ITEMS

ITEMS TO MONITOR

- **Monitor:** Thermal pane windows were observed on this property. Due to the weather, light conditions and window treatments fogging glass seals were not visible. Just because the windows are not fogging does not mean that the window seals are not bad.
- **Monitor:** The black rubber clothes washer lines should be changed to braided steel lines. Many insurance companies require this.
- **Monitor:** Larger than typical foundation settlement cracking was observed. The amount of movement which has occurred is not likely to have caused other damage to the structure but this area should be monitored. If additional movement occurs, more costly repairs might be necessary. The rate of movement cannot be predicted during a one-time inspection. These cracks may need sealing on the exterior to prevent moisture penetration.
- **Monitor:** The South wall is ¾ inch out of plumb. Corrections to the gutters, grading and downspouts should be done to remove excess moisture from the ground with in 5' of the foundation. If further movement occurs to the foundation a Structural Engineer should be consulted.
- **Monitor:** The old steel piping is subject to corrosion on the interior of the pipe. As corrosion builds up, the inside diameter of the pipe becomes constricted, resulting in a loss of water pressure. This piping is typically replaced when the loss of pressure can no longer be tolerated.
- **Monitor:** For the most part, the waste piping is old. It may be prone to unexpected problems. Improvement is recommended on an as needed basis.

DEFERRED COST ITEMS

- **Deferred Cost Item:** 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.

THE SCOPE OF THE INSPECTION

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

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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.

WEATHER CONDITIONS

Dry weather conditions prevailed at the time of the inspection.
The estimated outside temperature was 70 degrees F.

RECENT WEATHER CONDITIONS

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

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Structure

DESCRIPTION OF STRUCTURE

Foundation:	•Concrete Block •Basement Configuration •75% Of Foundation Was Not Visible
Columns:	•Steel
Floor Structure:	•Wood Joist
Wall Structure:	•Not Visible
Ceiling Structure:	•Not Visible
Roof Structure:	•Rafters •Solid Plank Sheathing

STRUCTURE OBSERVATIONS

Positive Attributes

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. The construction of the house is of average quality with typical liberties taken with good building practice and with the quality of materials employed. The inspection did not disclose significant deficiencies in the structure. Typical minor flaws were detected in the structural components of the building.

RECOMMENDATIONS / OBSERVATIONS

Foundation

- **Monitor:** The South wall is ¾ inch out of plumb. Corrections to the gutters, grading and downspouts should be done to remove excess moisture from the ground with in 5' of the foundation. If further movement occurs to the foundation a Structural Engineer should be consulted.
- **Monitor:** Larger than typical foundation settlement cracking was observed. The amount of movement which has occurred is not likely to have caused other damage to the structure but this area should be monitored. If additional movement occurs, more costly repairs might be necessary. The rate of movement cannot be predicted during a one-time inspection. These cracks may need sealing on the exterior to prevent moisture penetration.

Discretionary Improvements

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 a representative sampling 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.
- The roof space/attic was viewed from the access hatch only.
- Percent of foundation ceiling not visible was 70%

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Roofing

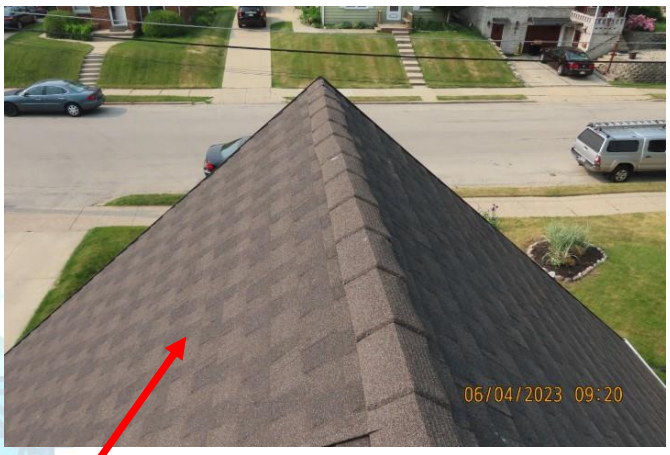
DESCRIPTION OF ROOFING

Roof Covering:	•Metal •Asphalt Shingle
Roof Flashings:	•Not Visible
Chimneys:	•Masonry
Roof Drainage System:	•Aluminum •Downspouts discharge above grade
Skylights:	•None
Method of Inspection:	•Walked on roof •Viewed with binoculars

ROOFING OBSERVATIONS

Positive Attributes

The house roof coverings are newer and appear to be in generally good condition. The steep pitch of the roof should result in a longer than normal life expectancy for roof coverings. The chimneys do not show signs of significant deterioration.



General Comments

In all, the roof coverings show evidence of normal wear and tear for a home of this age. The design of the roofing system is such that several vulnerable areas exist. There is a higher potential for unanticipated repairs. Annual inspections and ongoing maintenance will be critical to the performance of the roofing system. The configuration of the roofing system is susceptible to ice damming and related leaks. The potential for ice dams varies with the severity of the winter and depending on insulation and ventilation under the roof. Severe ice dams can result in leaks, typically near the eaves. Solutions include better attic insulation and ventilation, eave protection below the roof coverings, or as a stop-gap measure, the installation of heating cables on the roof.

RECOMMENDATIONS / OBSERVATIONS

Sloped Roofing

- **Monitor:** The house sloped roofing is newer and in good condition.
- **Monitor:** The garage sloped roofing is in fair condition. We did not see evidence of active leaks nor need for immediate major repair.
- It is recommended that the present layers of roofing materials be removed prior to re-roofing. This adds cost to the demolition and debris removal.
- The south and west sides of a roof typically wear faster than the other exposures of the roof. If the best roof sections have less than five years of life remaining while the worst sections are already in need of replacement, it is usually logical to replace all roof slopes during re-roofing.

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Flashings

- **Major Concern, Repair: Defect:** The installation of the chimney, bath fan vent, plumbing stack, front vestibule, and dormer flashings are incomplete and must be repaired to avoid leaks. It's possible that a warranty claim may be possible if made by the present owner who had the roof installed. The roof should be examined by a roofing contractor and repair/replacement cost estimated. (Roofing)

Chimneys

- **Monitor:** The masonry chimney shows evidence of normal wear and tear.

Gutters & Downspouts

- **Repair:** The gutters require cleaning to avoid spilling roof runoff around the building – a potential source of water entry or water damage.
- **Repair: Defect:** The 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. (Roofing)

Discretionary Improvements

Covering the gutters with a protective mesh may help to avoid congestion with leaves and debris.

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 all of the 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 buildup, 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.

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Exterior

DESCRIPTION OF EXTERIOR

Wall Covering:	•Brick •Metal Siding
Eaves, Soffits, And Fascias:	•Aluminum
Exterior Doors:	•Metal •Fiberglass
Window/Door Frames and Trim:	•Metal-Covered
Entry Driveways:	•Concrete
Entry Walkways And Patios:	•Concrete
Porches, Decks, Steps, Railings:	•Concrete
Overhead Garage Door(s):	•Steel •Automatic Opener Installed
Surface Drainage:	•Level Grade •Graded Away From House
Retaining Walls:	•None
Fencing:	•None

EXTERIOR OBSERVATIONS

Positive Attributes

The house has brick constructed exterior walls. The exterior siding that has been installed on the house is relatively low maintenance. The aluminum soffits and fascia are a low-maintenance feature of the exterior of the home. The auto reverse mechanism on the overhead garage door responded properly to testing. This safety feature should be tested regularly as a door that doesn't reverse can injure someone or fall from the ceiling. Refer to the owner's manual or contact the manufacturer for more information. The driveway and walkways are in good condition.

General Comments

The exterior of the home shows normal wear and tear for a home of this age. The exterior of the home has lacked some maintenance. Repairs are needed.

RECOMMENDATIONS / OBSERVATIONS

Monitor: The homeowner is responsible for maintaining proper drainage around the building. This means keeping the gutters clean and properly pitched, downspouts extended 5-7 ft. from the building, underground downspouts clean and proper grading pitched away the foundation of the building approximately ½ " per ft. for at least 10 ft. or to the lot line. Failure to do this maintenance can lead to water penetration, mold and eventual major foundation repair.

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Exterior Walls

- **Repair: Defect:** Exterior wall cracks above lintel (a lintel is a beam supporting masonry above an opening in a wall) at the north exterior suggests that the lintel has failed. This condition is not uncommon. The lintels should be replaced by a mason. (Structure)
- **Monitor:** Exterior wall cracks above a lintel (a lintel is a beam supporting masonry above an opening in a wall) suggests that the lintel may be marginal. This condition is not uncommon. If additional movement occurs repairs will be needed. The lintels should be painted with a rust inhibiting product to prevent further cracks and movement.
- **Repair:** The lintels (a lintel is a beam supporting masonry above an opening in a wall) have been caulked and this will allow water to buildup in the wall. The caulk should be removed so that water can drain out above the window and also preserve the lintels.

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- **Repair:** Damaged brickwork should be repaired to preserve the wall.

Windows

- **Repair:** The concrete window sills require sealing and repair.

Garage

- **Monitor:** The garage floor slab has typical cracks usually the result of shrinkage and/or settling of the slab. Cracks more than 1/8" high could present a trip hazard.

Lot Drainage

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

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.

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Electrical

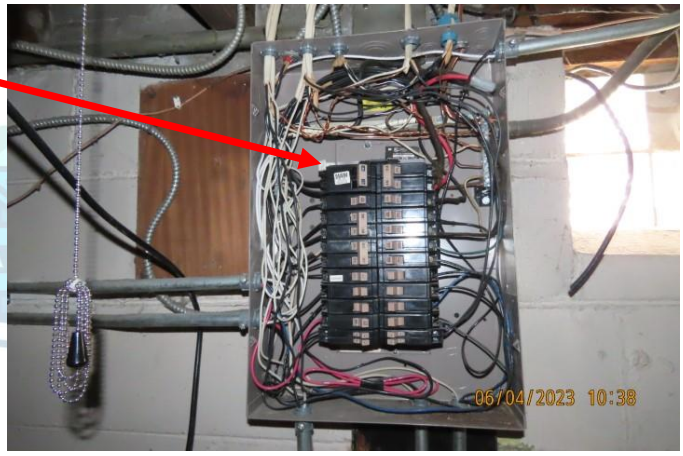
DESCRIPTION OF ELECTRICAL

Size of Electrical Service:	•120/240 Volt Main Service - Service Size: 100 Amps
Service Drop:	•Overhead
Service Entrance Conductors:	•Copper
Service Equipment & Main Disconnects:	•Main Service Rating 100 Amps •Breakers •Located: East Wall of Basement
Service Grounding:	•Copper •Water Pipe Connection •Ground Rod Connection •Ground Connection Not Visible
Distribution Wiring:	•Copper
Wiring Method:	•Armored Cable "BX" • Non-Metallic Cable "Romex"
Switches & Receptacles:	•Grounded and Ungrounded
Ground Fault Circuit Interrupters:	•Bathroom(s) •Garage •Kitchen
Smoke Detectors:	•Present •Absent

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. 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

Main Panel

- **Repair:** There should be nothing in front of the electrical panel for 36” floor to ceiling. Storage or appliances should be moved or the panels relocated.

Distribution Wiring

- **Repair:** Loose wiring should be secured.
- **Repair:** Wiring exposed on interior finishes should be relocated or protected by a rigid conduit.

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Outlets

- **Safety Issue:** An outlet has reversed polarity (i.e. it is wired backwards). This outlet and the circuit should be investigated and repaired as necessary.
- **Repair:** Ungrounded 3-prong outlets should be repaired. In some cases a ground wire may be present in the electrical box and simply needs to be connected. If no ground is present "repair" can be as simple as filling the ground slot with epoxy. Better, since 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.
- **Repair:** Outlets that are loose should be repaired.
- **Safety Issue: Defect:** The ground fault circuit interrupter (GFCI) outlet in the garage did not respond correctly to testing during the inspection. This receptacle should be replaced.(Electrical)

Smoke Detectors

- **Repair:** The installation of smoke detectors in each bedroom and outside sleeping areas is recommended.

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

Additional outlets in some areas of the home may be desirable.

During the course of any renovating, it is recommended that old wiring be replaced.

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.
- The ground connection for the electrical service was not visible at the time of the inspection.

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

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Heating

DESCRIPTION OF HEATING

Energy Source: •Gas
Heating System Type: •Forced Air Furnace •Manufacturer: Bryant
•Serial Number: 1818A46453 60,000 BTU – 39,000 2018
Vents, Flues, Chimneys: •Plastic
Heat Distribution Methods: •Ductwork

HEATING OBSERVATIONS

Positive Attributes

The heating system is in generally good condition. This is a high efficiency heating system. Heating a home with this type of heating system should be relatively economical. The heating system is controlled by a "set back" thermostat. This type of thermostat, if set up correctly, helps reduce heating costs. The furnace has a two speed fan, allowing for continuous circulation and cleaning of air within the home.

General Comments

The heating system shows no visible evidence of major defects.

RECOMMENDATIONS / OBSERVATIONS

Furnace

- The heating system was tested for CO with a Testo - 325 CO meter and the level was 19ppm. For most furnaces and boilers 80 PPM or lower is considered normal operating condition. CO levels over 100 are a safety issue and should be evaluated by an HVAC contractor.
- The furnace was tested and functioned properly at the inspection. A temperature rise test was performed and the temperature rise was within the normal range. A temperature rise test is the temperature difference between the supply air and the return temp at the plenum.
- **Repair:** The heating system requires service. There were no service stickers on the furnace unit that indicate this unit has been serviced in the past two years. This should be a regular maintenance item to assure safe, reliable heat. Recommend further evaluation by a licensed HVAC technician.

Supply Air Ductwork

- **Repair:** Balancing of the ductwork is recommended to improve the distribution of heat supply.
- **Improve:** Duct cleaning is recommended.

Chimney

- **Repair: Defect** The chimney needs to be fire stopped at the basement ceiling around the chimney. This is to prevent fire from spreading from the basement to the attic. This will also help minimize the stack effect of moist air in the basement from entering a roof space/attic. The fire stopping can be 5/8 drywall or sheet metal, caulked, around the chimney to seal it. (Heating)

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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.
- The clean out at the base of the chimney was not opened.

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

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Cooling / Heat Pumps

DESCRIPTION OF COOLING / HEAT PUMPS

Energy Source: •240 Volt Power Supply
Central System Type: •Air Cooled Central Air Conditioning •Manufacturer: Bryant
•Serial Number: 1318E03096 2 ton 2018
Through-Wall Equipment: •Present At West Exterior

COOLING / HEAT PUMPS OBSERVATIONS

Positive Attributes

Upon testing in the air conditioning mode, a normal temperature drop across the evaporator coil was observed. This suggests that the system is operating properly. This is a relatively new system that should have years of useful life remaining. Regular maintenance will, of course, be necessary.
The system responded properly to operating controls.

General Comments

The system shows no visible evidence of major defects.

RECOMMENDATIONS / OBSERVATIONS

Central Air Conditioning

- The AC cooling differential was 21°. The differential should be between 14°to 21° for a normal operating AC unit.
- **Repair:** The air conditioning system requires servicing. There were no service stickers on the AC unit that indicate this unit has been serviced in the past two years.

Supply Air Ductwork

- **Improve:** Duct cleaning is recommended.

Discretionary Improvements

Installing additional return air vents would help to improve the distribution of cool air within the home.

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.

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

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Insulation / Ventilation

DESCRIPTION OF INSULATION / VENTILATION

Attic Insulation:	•R20 Fiberglass in Main Attic
Roof Cavity Insulation:	•Unknown in Cathedral Roof
Exterior Wall Insulation:	•Not Visible
Basement Wall Insulation:	•Not Visible
Vapor Retarders:	•Unknown
Roof Ventilation:	•Gable Vents
Exhaust Fan/vent Locations:	•Bathroom •Dryer

INSULATION / VENTILATION OBSERVATIONS

General Comments

As is typical of homes of this age and construction, insulation levels are relatively modest. Upgrading insulation levels in a home is an improvement rather than a necessary repair. Most old homes have relatively low levels of insulation. The down side, of course, is that heating and/or cooling costs are higher. The up side is that these homes tend to be fairly well ventilated. Their natural ability to allow infiltration of outside air actually improves indoor air quality. Improving insulation levels will reduce energy costs; however, the potential benefit should we carefully weighed against the cost of improvements. During any planned re-roofing, overhead insulation and ventilation levels should be investigated and improved where necessary. Caulking and weather-stripping around doors, windows and other exterior wall openings will help to maintain weather tightness and reduce energy costs.

RECOMMENDATIONS / ENERGY SAVING SUGGESTIONS

Attic / Roof

- **Repair:** For improved energy savings, the attic access door should be insulated.
- **Monitor:** Insulation improvements may be cost effective, depending on the anticipated term of ownership.
- **Repair:** The level of ventilation should be improved. It is generally recommended that one (1) square foot of free vent area be provided for every one hundred and fifty (150) square feet of ceiling area. Proper ventilation will help to keep the house cooler during warm weather and extend the life of roofing materials. In cold climates, it will help reduce the potential for ice dams on the roof and condensation within the attic.

Basement

- **Improve:** It would be wise to insulate the “rim joist” cavities around the perimeter of the basement.

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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.
- The attic was viewed from the access hatch only.
- No access was gained to the roof cavity of the sloped ceilings.
- No access was gained to the wall cavities of the home.

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

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Plumbing

DESCRIPTION OF PLUMBING

Water Supply Source:	•Public Water Supply
Service Pipe to House:	•Copper
Main Water Valve Location:	•Front Wall of Basement
Interior Supply Piping:	•Steel •Copper
Waste System:	•Public Sewer System
Drain, Waste, & Vent Piping:	•Cast Iron •Steel •Plastic
Water Heater:	•Gas •Approximate Capacity (in gallons): 40
	•Manufacturer: Richmond•Serial Number: RMLN1005420133 2005
Fuel Shut-Off Valves:	•Natural Gas Main Valve At West Exterior

PLUMBING OBSERVATIONS

Positive Attributes

The plumbing system is in generally good condition. The water pressure supplied to the fixtures is reasonably good. A typical drop in flow was experienced when two fixtures were operated simultaneously. Some of the plumbing fixtures within the home have been upgraded. The plumbing fixtures appear to have been well-maintained.

General Comments

The plumbing system requires some typical minor improvements. The plumbing system is showing signs of age. Updating the system will be required over time. The water heater temperature should be set such that accidental scalding is minimized. Families with small children should be especially aware of this.

RECOMMENDATIONS / OBSERVATIONS

Water Heater

- **Deferred Cost Item:** 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.
- **Improve:** It is recommended that when this water heater needs replacement a high efficient power vent water heater be installed. These water heaters are 30% more efficient than standard water heaters and there is less of a chance of CO poisoning.

Supply Plumbing

- **Monitor:** The old steel piping is subject to corrosion on the interior of the pipe. As corrosion builds up, the inside diameter of the pipe becomes constricted, resulting in a loss of water pressure. This piping is typically replaced when the loss of pressure can no longer be tolerated.

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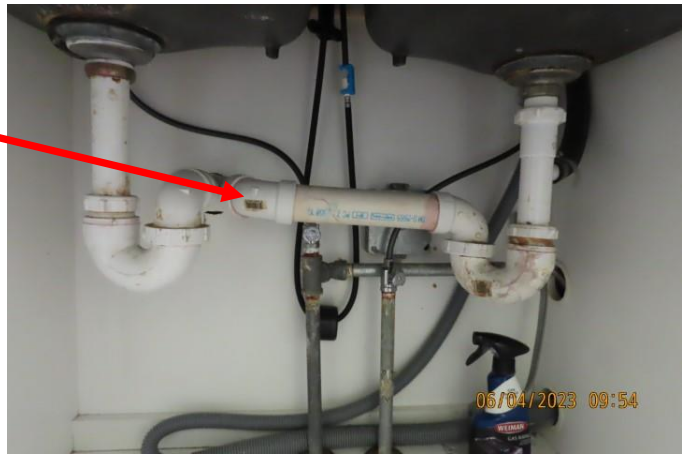
Waste / Vent

- **Monitor:** For the most part, the waste piping is old. It may be prone to unexpected problems. Improvement is recommended on an as needed basis.
- **Repair:** The waste piping below the kitchen sink does not have sufficient slope for proper drainage.



Fixtures

- **Monitor:** The old concrete laundry tub appears serviceable; however, it should be monitored for leakage.
- **Repair:** It is recommended that an anti-siphon device be added to the hose bib(s). The anti-siphon device serves to prevent chemicals from getting into the house water supply when mixing chemicals for exterior landscaping. Please visit http://www.berryhilldrip.com/Backflow.htm
- **Repair:** The tub drain stopper does not function.
- **Improve:** The shower diverter no longer functions efficiently. As this condition effects water pressure sent to the shower head, improvement should be undertaken when showerhead water pressure is deemed too low.
- **Improve:** The faucet in the basement bathroom is loose.

Discretionary Improvements

Supply piping may be susceptible to freezing during extremely cold weather. Heating or insulating this pipe would be wise.

During the process of plumbing fixture renovation, it would be wise to replace old piping that is exposed.

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.
- An inspection of the sewage system is outside the scope of this inspection.
- An inspection of the well is outside the scope of this inspection. A sample of the well water can be sent to a lab at an additional expense.
- The water conditioning system was not part of the inspection.

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

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Interior

DESCRIPTION OF INTERIOR

Wall And Ceiling Materials:	•Plaster •Drywall •Paneling
Floor Surfaces:	•Wood •Vinyl/Resilient •Carpet •Tile
Window Type(s) & Glazing:	•Double/Single Hung •Casement •Double Glazed
Doors:	•Wood-Hollow Core •Storm Door(s)

INTERIOR OBSERVATIONS

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

General Condition of Windows and Doors
The majority of the doors and windows are average quality. The windows have, for the most part, been well-maintained.

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

RECOMMENDATIONS / OBSERVATIONS

Wall / Ceiling Finishes
- **Repair:** The plaster shows evidence of bulging.
- **Monitor:** The plaster finishes show evidence of weakening, as is common in many old homes.

Windows
- **Monitor:** Thermal pane windows were observed on this property. Due to the weather, light conditions and window treatments fogging glass seals were not visible. Just because the windows are not fogging does not mean that the window seals are not bad.

Doors
- **Repair:** Doors should be trimmed or adjusted as necessary to work properly.
- **Repair:** Damage to the door/s was noted. Replacement of the damaged doors should be under taken.

Basement Leakage
- **Monitor:** The basement shows evidence of moisture penetration. ***It should be understood that it is impossible to predict the severity or frequency of moisture penetration on a one-time visit to a home.*** Virtually all basements exhibit signs of moisture penetration and virtually all basements will indeed leak at some point in time. The visible evidence is not unusual for a home of this age, construction and location. Further monitoring of the foundation will be required to determine what improvements, if any, will be required. Basement leakage rarely affects the structural integrity of a home.
The vast majority of basement leakage problems are the result of insufficient control of storm water at the surface. The ground around the house should be sloped to encourage water to flow away from the foundations. Gutters and

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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.

- **Monitor:** It is very common for shrinkage and/or settling cracks to develop in foundation walls. It is also common for these cracks to leak. If leakage is experienced, improve lot drainage adjacent to the crack. If leakage persists, various methods of crack repair are available. These include interior patching with an epoxy resin or hydraulic cement and exterior repairs after excavation. The exterior repair, although more expensive, is more often successful in eliminating leakage.
- **Monitor:** Basement leakage problems can sometimes develop as a result of damaged, congested or ineffective perimeter foundation drainage tiles (often referred to as "weeping tiles"). It is impossible to predict the condition of drainage tiles during a visual inspection of the basement.
- **Repair:** The palmer valve is stuck open. A plumber should be consulted to evaluate the palmer valve. A palmer valve that remains closed will not allow water to drain out of the drain tile, it will therefore leak though the foundation into the basement. A palmer valve that is damaged will allow waste water to contaminate the drain tile.

- **Monitor:** Depending on the location of the house, ground water tables can sometimes influence basement leakage. Ground water levels tend to fluctuate seasonally and during heavy rainfall. It is impossible to predict what influence ground water may have, during a one-time inspection of a home. If ground water levels extend above the height of the basement floor, the performance of the perimeter foundation drainage tile is very important. If ground water fluctuation causes basement leakage, the installation of effective drainage tiles (and sump pumps, in some cases) becomes necessary.
- **Monitor:** For owners of many old homes, basement leakage is a way of life. During rainy periods, or during the spring thaw, leakage is experienced. As basement leakage rarely influences the structural integrity of a home, and because basements of old homes usually remain unfinished, this condition is simply tolerated. Some precautions are, of course, taken to avoid damage to storage and personal belongings.

Environmental Issues

- **Monitor:** There is the potential for lead content in the drinking water within the home. Lead in water may have two sources; the piping system of the utility delivering water to the house and/or the solder used on copper pipes prior to 1988. This can only be confirmed by laboratory analysis. An evaluation of lead in water is beyond the scope of this inspection. For more information, consult the Environmental Protection Agency (E.P.A.) for further guidance and a list of testing labs in your area.
- **Monitor:** Insulation on the ductwork and/or distribution piping may contain asbestos. This can only be verified by laboratory analysis. The Environmental Protection Agency (E.P.A.) reports that asbestos represents a health hazard if "friable" (damaged, crumbling, or in any state that allows the release of fibers). If replacement of the boiler necessitates the removal of the asbestos containing insulation, a specialist should be engaged. If any sections of this insulation are indeed friable, or become friable over time, a specialist should be engaged. Further guidance is available from the E.P.A. Due to the age of construction, there may be other materials within the home that contain asbestos but are not identified by this inspection report.
- **Monitor:** Lead-based paint was in use until approximately 1978. According to the Federal Department of Housing and Urban Development, a lead hazard can be present in a house of this age. This can only be confirmed by laboratory analysis. An evaluation of lead in paint is beyond the scope of this inspection. For more information, consult the Environmental Protection Agency (E.P.A.) for further guidance and a list of testing labs in your area.

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- **Monitor:** Radon gas is a naturally occurring gas that is invisible, odorless and tasteless. A danger exists when the gas percolates through the ground and enters a tightly enclosed structure (such as a home). Long term exposure to high levels of radon gas can cause cancer. ***The Environmental Protection Agency (E.P.A.) states that a radon reading of more than 4.0 picocuries per liter of air represents a health hazard.*** A radon evaluation is beyond the scope of this inspection (unless specifically requested). For more information, consult the Environmental Protection Agency (E.P.A.) for further guidance and a list of testing labs in your area.
- **Monitor:** It would be wise to install carbon monoxide detectors within the home. Carbon monoxide is a colorless, odorless gas that can result from a faulty fuel burning furnace, range, water heater, space heater or wood stove. Proper maintenance of these appliances is the best way to reduce the risk of carbon monoxide poisoning. For more information, consult the Consumer Product Safety Commission at 1-800-638-2772 (C.P.S.C.).

Discretionary Improvements

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

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.
- Recent renovations and/or interior painting concealed historical evidence.
- Portions of the foundation walls were concealed from view.
- The adequacy of the fireplace draw cannot be determined during a visual inspection.
- Underlying components were not visible i.e.-Sheathing, Studs, Wall Cavities, Insulation, MOLD

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

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Appliances

DESCRIPTION OF APPLIANCES

Appliances Tested: •Dishwasher •Gas Cooktop •Kitchen Exhaust Hood

Laundry Facility: •240 Volt Circuit for Dryer •Dryer Vented to Building Exterior •120 Volt Circuit for Washer •Hot and Cold Water Supply for Washer •Washer Discharges to Laundry Tub/Sink

APPLIANCES OBSERVATIONS

Positive Attributes
The kitchen and laundry facilities are well organized.

General Comments
Only minor improvements to the appliances are needed. The appliances are middle aged. As such, they will become slightly more prone to breakdowns; however, several years of serviceable life should remain.

RECOMMENDATIONS / OBSERVATIONS

NOTE: FIRE HAZARD... DRYER LINT

I recommend that the entire clothes dryer venting system be cleaned of the accumulated lint on a regular basis. Dryer vent lint build-up is known to be a FIRE HAZARD. Replacing the flexible venting is recommended, as cleaning this is virtually impossible. Use only properly sized and installed metal venting material as the commonly installed plastic venting materials are not fire proof.

Gas Range
- **Repair, Safety Issue:** There does not appear to be an anti-tip device on the stove in the kitchen. ***This situation should be investigated immediately for improved safety.***

Clothes Dryer
- **Repair:** The clothes dryer exhaust vent pipe (duct) should be improved. Recommend replacing the flex piping with rigid metal pipe.

Clothes Washer
- **Monitor:** The black rubber clothes washer lines should be changed to braided steel lines. Many insurance companies require this.

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.

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Photo Summary

Flashing is incomplete

Black rubber hoses have a low psi strength

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Loose

Flashings are incomplete

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Loose outlets need to be secured

GFCI tested faulty

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Concrete sills need repair

Main Water Shut Off

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Maintenance Advice

UPON TAKING OWNERSHIP

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

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

REGULAR MAINTENANCE

EVERY MONTH

- ❑ Check that fire extinguisher(s) are fully charged. Re-charge if necessary.
- ❑ Examine heating/cooling air filters and replace or clean as necessary.
- ❑ Inspect and clean humidifiers and electronic air cleaners.
- ❑ If the house has hot water heating, bleed radiator valves.
- ❑ Clean gutters and downspouts. Ensure that downspouts are secure, and that the discharge of the downspouts is appropriate. Remove debris from window wells.
- ❑ Carefully inspect the condition of shower enclosures. Repair or replace deteriorated grout and caulk. Ensure that water is not escaping the enclosure during showering. Check below all plumbing fixtures for evidence of leakage.
- ❑ Repair or replace leaking faucets or shower heads.
- ❑ Secure loose toilets, or repair flush mechanisms that become troublesome.

SPRING AND FALL

- ❑ Examine the roof for evidence of damage to roof coverings, flashings and chimneys.
- ❑ Look in the attic (if accessible) to ensure that roof vents are not obstructed. Check for evidence of leakage, condensation or vermin activity. Level out insulation if needed.
- ❑ Trim back tree branches and shrubs to ensure that they are not in contact with the house.
- ❑ Inspect the exterior walls and foundation for evidence of damage, cracking or movement. Watch for bird nests or other vermin or insect activity.
- ❑ Survey the basement and/or crawl space walls for evidence of moisture seepage.
- ❑ Look at overhead wires coming to the house. They should be secure and clear of trees or other obstructions.

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- ❑ Ensure that the grade of the land around the house encourages water to flow away from the foundation.
- ❑ Inspect all driveways, walkways, decks, porches, and landscape components for evidence of deterioration, movement or safety hazards.
- ❑ Clean windows and test their operation. Improve caulking and weather-stripping as necessary. Watch for evidence of rot in wood window frames. Paint and repair window sills and frames as necessary.
- ❑ Test all ground fault circuit interrupter (GFCI) devices, as identified in the inspection report.
- ❑ Shut off isolating valves for exterior hose bibs in the fall, if below freezing temperatures are anticipated.
- ❑ Test the Temperature and Pressure Relief (TPR) Valve on water heaters.
- ❑ Inspect for evidence of wood boring insect activity. Eliminate any wood/soil contact around the perimeter of the home.
- ❑ Test the overhead garage door opener, to ensure that the auto-reverse mechanism is responding properly. Clean and lubricate hinges, rollers and tracks on overhead doors.
- ❑ Replace or clean exhaust hood filters.
- ❑ Clean, inspect and/or service all appliances as per the manufacturer's recommendations.

ANNUALLY

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

PREVENTION IS THE BEST APPROACH

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

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

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Information about Radon

EPA RADON RISK INFORMATION

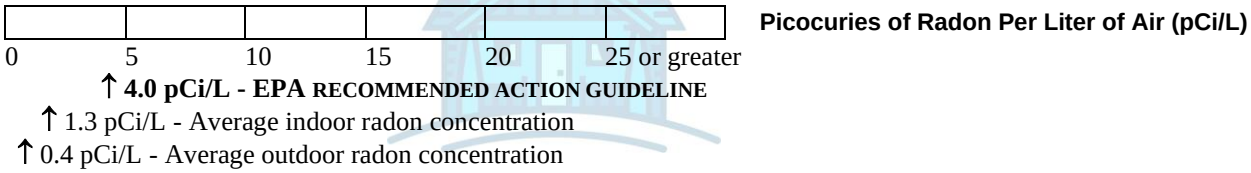
Fifty-five percent of our exposure to natural sources of radiation usually comes from radon. Radon is a colorless, tasteless, and odorless gas that comes from the decay of uranium found in nearly all soils. Levels of radon vary throughout the country. Radon is found all over the United States and scientists estimate that nearly one out of every 15 homes in this country has radon levels above recommended action levels.

Radon usually moves from the ground up and migrates into homes and other buildings through cracks and other holes in their foundations. The buildings trap radon inside, where it accumulates and may become a health hazard if the building is not properly ventilated.

When you breathe air containing a large amount of radon, the radiation can damage your lungs and eventually cause lung cancer. Scientists believe that radon is the second leading cause of lung cancer in the United States. It is estimated that 7,000 to 30,000 Americans die each year from radon-induced lung cancer. Only smoking causes more lung cancer deaths and smokers exposed to radon are at higher risk than nonsmokers. Testing your home is the only way to know if you and your family are at risk from radon.

Testing for Radon.

Should you have your home tested, use the chart below to compare your radon test results with the EPA guideline. The higher a home's radon level, the greater the health risk to you and your family.



The U.S. Environmental Protection Agency (EPA) and the Surgeon General Strongly recommend taking further action when the home's radon test results are 4.0 pCi/L or greater. The concentration of radon in the home is measured in picocuries per liter of air (pCi/L). Radon levels less than 4.0 pCi/L still pose some risk and in many cases may be reduced. If the radon level in your home is between 2.0 and 4.0 pCi/L, EPA recommends that you **consider** fixing your home. The national average indoor radon level is about 1.3 pCi/L. The higher a home's radon level, the greater the health risk to you and your family. Smokers and former smokers are at especially high risk. There are straightforward ways to fix a home's radon problem that are not too costly. Even homes with very high levels can be reduced to below 4.0 pCi/L. EPA recommends that you use an EPA or State-approved contractor trained to fix radon problems.

What do radon test results mean?

If your radon level is **below 4 pCi/L**, you do not need to take action.

If you radon level is **4 pCi/L or greater**, use the following charts to determine what your test results mean. Depending upon the type of test(s) you took, you will have to either test again or fix the home.

NOTE: All tests should meet EPA technical protocols.

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Chart 1: Radon Test Conducted Outside Real Estate Transaction

Type of Test(s)	If Radon Level Is **4.0 pCi/L or Greater**
Single Short-Term Test	**Test Again***
Average of Short-Term Tests	**Fix The Home**
One Long-Term Test	**Fix The Home**

* If your first short term test is several times greater than 4.0 pCi/L - for example, about 10.0 pCi/L or higher - you should take a second short-term test immediately.

Chart 1: Radon Test Conducted During a Real Estate Transaction (Buying or Selling a Home)

Type of Test(s)	If Radon Level Is **4.0 pCi/L or Greater**
Single Active Short-Term Test (this test requires a machine)	**Fix The Home**
Average of 2 Passive Short-Term Tests* (these tests do not require machines)	**Fix The Home**
One Long-Term Test	**Fix The Home**

* Use two passive short-term tests and average the results.

What should I do after testing?

If your radon level is 4.0 pCi/L or greater, you can call your State radon office to obtain more information, including a list of EPA or State-approved radon contractors who can fix or can help you develop a plan for fixing the radon problem. Reduction methods can be as simple as sealing cracks in floors and walls or as complex as installing systems that use pipes and fans to draw radon out of the building.

EPA has a National Radon Program to inform the public about radon risks, train radon mitigation contractors, provide grants for state radon programs, and develop standards for radon-resistant buildings. EPA works with health organizations, state radon programs, and other federal agencies to make the program as effective as possible.

For more information about radon, its risks and what you can do to protect yourself, call 1-800-SOS-RADON and request a free copy of EPA's *A Citizen's Guide to Radon*. You may also call the Radon Fix-It Line at 1-800-644-6999 between noon and 8pm Monday through Friday, EST/EDT, for information and assistance. This toll-free line is operated by Consumer Federation of America, a nonprofit consumer organization.

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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 are 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, there 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?

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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 should the detector 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 since 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

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Information about Lead Based Paint

Lead-based paint is hazardous to your health.

Lead-based paint is a major source of lead poisoning for children and can also affect adults. In children, lead poisoning can cause irreversible brain damage and can impair mental functioning. It can retard mental and physical development and reduce attention span. It can also retard fetal development even at extremely low levels of lead. In adults, it can cause irritability, poor muscle coordination, and nerve damage to the sense organs and nerves controlling the body. Lead poisoning may also cause problems with reproduction (such as a decreased sperm count). It may also increase blood pressure. Thus, young children, fetuses, infants, and adults with high blood pressure are the most vulnerable to the effects of lead.

Children should be screened for lead poisoning.

In communities where the houses are old and deteriorating, take advantage of available screening programs offered by local health departments and have children checked regularly to see if they are suffering from lead poisoning. Because the early symptoms of lead poisoning are easy to confuse with other illnesses, it is difficult to diagnose lead poisoning without medical testing. Early symptoms may include persistent tiredness, irritability, loss of appetite, stomach discomfort, reduced attention span, insomnia, and constipation. Failure to treat children in the early stages can cause long-term or permanent health damage.

The current blood lead level which defines lead poisoning is 10 micrograms of lead per deciliter of blood. However, since poisoning may occur at lower levels than previously thought, various federal agencies are considering whether this level should be lowered further so that lead poisoning prevention programs will have the latest information on testing children for lead poisoning.

Consumers can be exposed to lead from paint.

Eating paint chips is one way young children are exposed to lead. It is not the most common way that consumers, in general, are exposed to lead. Ingesting and inhaling lead dust that is created as lead-based paint "chalks," chips, or peels from deteriorated surfaces can expose consumers to lead. Walking on small paint chips found on the floor, or opening and closing a painted frame window, can also create lead dust. Other sources of lead include deposits that may be present in homes after years of use of leaded gasoline and from industrial sources like smelting. Consumers can also generate lead dust by sanding lead-based paint or by scraping or heating lead-based paint.

Lead dust can settle on floors, walls, and furniture. Under these conditions, children can ingest lead dust from hand-to-mouth con- tact or in food. Settled lead dust can re-enter the air through cleaning, such as sweeping or vacuuming, or by movement of people throughout the house.

Older homes may contain lead based paint.

Lead was used as a pigment and drying agent in "alkyd" oil based paint. "Latex" water based paints generally have not contained lead. About two-thirds of the homes built before 1940 and one-half of the homes built from 1940 to 1960 contain heavily-leaded paint. Some homes built after 1960 also contain heavily-leaded paint. It may be on any interior or exterior surface, particularly on woodwork, doors, and windows. In 1978, the U.S. Consumer Product Safety Commission lowered the legal maximum lead content in most kinds of paint to 0.06% (a trace amount). Consider having the paint in homes constructed before the 1980s tested for lead before renovating or if the paint or underlying surface is deteriorating. This is particularly important if infants, children, or pregnant women are present.

Consumers can have paint tested for lead.

There are do-it-yourself kits available. However, the U.S. Consumer Product Safety Commission has not evaluated any of these kits. One home test kit uses sodium sulfide solution. This procedure requires you to place a drop of sodium sulfide solution on a paint chip. The paint chip slowly turns darker if lead is present. There are problems with this test, however. Other metals may cause false positive results, and resins in the paint may prevent the sulfide from causing the paint chip to change color. Thus, the presence of lead may not be correctly indicated. In addition the darkening may be detected only on very light-colored paint.

Another in-home test requires a trained professional who can operate the equipment safely. This test uses X-ray fluorescence to determine if the paint contains lead. Although the test can be done in your home, it should be done only by professionals

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trained by the equipment manufacturer or who have passed a state or local government training course, since the equipment contains radioactive materials. In addition, in some tests, the method has not been reliable.

Consumers may choose to have a testing laboratory test a paint sample for lead. Lab testing is considered more reliable than other methods. Lab tests may cost from $20 to $50 per sample. To have the lab test for lead paint, consumers may:

- Get sample containers from the lab or use re-sealable plastic bags. Label the containers or bags with the consumer's name and the location in the house from which each paint sample was taken. Several samples should be taken from each affected room (see HUD Guidelines discussed below).
- Use a sharp knife to cut through the edges of the sample paint. The lab should tell you the size of the sample needed. It will probably be about 2 inches by 2 inches.
- Lift off the paint with a clean putty knife and put it into the container. Be sure to take a sample of all layers of paint, since only the lower layers may contain lead. Do not include any of the underlying wood, plaster, metal, and brick.
- Wipe the surface and any paint dust with a wet cloth or paper towel and discard the cloth or towel.

The U.S. Department of Housing and Urban Development (HUD) recommends that action to reduce exposure should be taken when the lead in paint is greater than 0.5% by lab testing or greater than 1.0 milligrams per square centimeter by X-ray fluorescence. Action is especially important when paint is deteriorating or when infants, children, or pregnant women are present. Consumers can reduce exposure to lead-based paint.

If you have lead-based paint, you should take steps to reduce your exposure to lead.

You can:

1. Have the painted item replaced.

You can replace a door or other easily removed item if you can do it without creating lead dust. Items that are difficult to remove should be replaced by professionals who will control and contain lead dust.

2. Cover the lead-based paint.

You can spray the surface with a sealant or cover it with gypsum wallboard. However, painting over lead-based paint with non-lead paint is not a long-term solution. Even though the lead-based paint may be covered by non-lead paint, the lead-based paint may continue to loosen from the surface below and create lead dust. The new paint may also partially mix with the lead-based paint, and lead dust will be released when the new paint begins to deteriorate.

3. Have the lead-based paint removed.

Have professionals trained in removing lead-based paint do this work. Each of the paint-removal methods (sandpaper, scrapers, chemicals, sandblasters, and torches or heat guns) can produce lead fumes or dust. Fumes or dust can become airborne and be inhaled or ingested. Wet methods help reduce the amount of lead dust. Removing moldings, trim, window sills, and other painted surfaces for professional paint stripping outside the home may also create dust. Be sure the professionals contain the lead dust. Wet-wipe all surfaces to remove any dust or paint chips. Wet-clean the area before re-entry.

You can remove a small amount of lead-based paint if you can avoid creating any dust. Make sure the surface is less than about one square foot (such as a window sill). Any job larger than about one square foot should be done by professionals. Make sure you can use a wet method (such as a liquid paint stripper).

4. Reduce lead dust exposure.

You can periodically wet mop and wipe surfaces and floors with a high phosphorous (at least 5%) cleaning solution. Wear waterproof gloves to prevent skin irritation. Avoid activities that will disturb or damage lead based paint and create dust. This is a preventive measure and is not an alternative to replacement or removal.

Contact your state and local health departments lead poisoning prevention programs and housing authorities for information about testing labs and contractors who can safely remove lead-based paint. The U.S. Department of Housing and Urban Development (HUD) prepared guidelines for removing lead-based paint. Ask contractors about their qualifications, experience removing lead-based paint, and plans to follow these guidelines.

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