

# REAL ESTATE INSPECTION SERVICES

## INFORMATION BOOKLET



# TABLE OF CONTENTS

INTRODUCTION.....	1
WHOLE HOUSE INSPECTION .....	1
WOOD DESTROYING INSECT INFESTATION INSPECTION .....	2
TERMITES .....	2
WOOD BORING BEETLES .....	3
CARPENTER ANTS .....	4
RADON TESTING .....	4
WATER ANALYSIS .....	5
TOTAL COLIFORM BACTERIA (TC) .....	6
Ph .....	6
IRON (Fe) .....	6
NITRATES (NO <sub>2</sub> ) .....	6
NITRATES (NO <sub>3</sub> ) .....	6
COPPER (Cu) .....	7
TOTAL DISSOLVE SOLIDS (TS) .....	7
HARDNESS .....	7
LEAD (PB) .....	7
ONLOT WASTEWATER TREATMENT SYSTEM INSPECTION .....	7
LEAD-BASED PAINT TESTING .....	8

## INTRODUCTION

This information booklet was completed to inform and educate Brokers, Realtors, lenders, buyers, sellers, or any other entity associated with the sale or purchase of Real Estate, about property inspections. Standard inspections include: Whole home inspection, Wood destroying insect infestation, Radon testing, Onlot wastewater treatment system inspection, Water Analysis, and Lead testing. This booklet is a compilation of information derived from many sources. As a basis, the American Society of Home Inspectors (ASHI), Pennsylvania Department of Environmental Protection, Pennsylvania Department of Agriculture, and the experiences of the Homecheck inspectors who have been combined to provide you with this valuable tool.

If the reader wishes to attain additional, in-depth information covered in this guide, they may find it through specialty texts, professional associations, and Homecheck, Inc.'s related materials. Homecheck, Inc. welcomes the readers' contributions to this booklet and is constantly upgrading the material contained herein in an effort to improve and expand the education process.

We believe that knowledge is power. Knowledge gives you a better opportunity to communicate effectively in a Real estate transaction. This information booklet should help overcome any insecurity you might have about the inspection process. We hope that you attain the American dream of home ownership and wish you the very best that life has to offer.

## WHOLE HOUSE INSPECTION

A home inspection, once the individual activity of an architect, builder, contractor or engineer has rapidly matured into a separate profession requiring a combination of skills and techniques that touch on all these.

Inspecting a home is deceptively simple: anyone can do it. Performing a professional home inspection is infinitely more difficult. Home inspectors need broad technical knowledge in building, design and the mechanical trades to recognize conditions that may affect the future life of a home. They must be able to analyze and evaluate what they have seen, to infer from that which they cannot see and to communicate their findings to their clients. The home inspection is designed to describe the exterior, structure, roof, plumbing, central heating, central air conditioning, electrical, interior, insulation and ventilation.. and garage in a home from the inspector's point of view rather than that of the tradesman.

When planning to buy a house, it is important to understand that no house is perfect, not even a brand new one. Homecheck, Inc. has inspected thousands of homes and has yet to see one in flawless condition. This does not mean that you will not find the house of your dreams. It does mean that when you find a house that's just what you want, you should go one step further to find out its problems or potential problems. Problems can be the result of deficiencies in construction, deterioration due to aging, or safety and fire hazards. Very often the problems are quite minor and can be corrected at little or no cost. However, sometimes there are major problems that are quite costly to correct. It is very important to know the house's true condition so that you can determine its true value. **Do not walk away from a house just because there are major problems. You might be getting a good buy, since every house has its market value. The true cost of buying a house is its purchase price plus the costs for upgrading substandard, deteriorated, or malfunctioning components.**

Choosing a home inspection company can be accomplished through your Realtor, yellow pages, friends or family recommendations, etc. A few questions that you should ask when choosing your inspection companies are: Is the company licensed, certified, or members of a National Home Inspection Association? Do they carry the proper insurance? Is the company a full time inspection operation? Do they carry any kind of free guarantee with their inspection? Will the home inspection report be provided at the time of inspection? Also when selecting a professional home inspection company, it is advisable not to use a company who is affiliated with an exterminating company, a Real Estate Broker, or a contractor (plumber, electrician, roofer, and so on). It is advisable to use an inspection company who is completely unbiased, with no vested interest in finding problem conditions in order support other non-related businesses.

Fees for a whole house inspection are generally based on flat fee and range between \$200-\$300.

## **WOOD DESTROYING INSECT INFESTATION INSPECTION**

Ninety-five percent of the time your mortgage lender will require that a wood destroying insect infestation inspection is completed on the property you wish to purchase prior to settlement. This will insure that it does not have an active infestation or major structural damage from wood destroying insects. The following insects are classified as wood destroying insects: Termites, Wood Boring Beetles, and Wood- Attacking Ants.

Homebuyers generally overreact after discovering any of the wood destroying -insect's presence and on occasion lose interest in the house. Actually, the discovery of an infestation should not be cause for alarm. Concern maybe, but alarm absolutely not. 85% of infestations are either inactive or have already been treated in the past to rectify the problem. There have been many half-truths spread throughout our community about the destructibility of wood destroying insects. Most of these half- truths have been brought about by the very same industry that treats them. Between the pest control business and the chemical industry well over 3 billion dollars a year is spent by consumers because of fear tactics brought by this industry. Homechek is not implying that chemical treatment is not necessary, however, we are saying that if more consumers were educated about wood destroying insects that 40% of the homes would not need to be chemically treated. That is why we feel it's important to have a wood destroying insect infestation inspection done by an **impartial** company that does not perform insect treatments to earn their money.

### ***Termites***

Termites have been around for several hundred million years. They live in colonies anywhere from two to fifteen feet below the ground. Termites play an important role in the natural ecological cycle. They feed on cellulose, the principle ingredient of wood, and help to break down dead trees in forests and other wooded areas, thus enriching the soil. Termites began attacking houses when the wooded areas were cleared for building construction and there was no other available source of food near their colony. Termites work very slowly. It takes many years for termites to do serious damage to a house.

The good news is that there are more homes without termites than those with them. Good home construction plays a large part in whether or not termites can enter them. Moisture control in and around the house plays another important role in a termite colonies' survival. There are very few houses on record that have been damaged by termites to a point where they are considered unsafe. Quite often the damage caused by termites (by the time termite activity is discovered) is minor, and repair or replacement of the infested wood members is not necessary. Even with a heavy infestation, usually only a portion of the house is affected. And even then, only a portion of the wood framing might be damaged to a point where it has lost its structural value. In this case, only the affected members require repair or replacement. It is important to note that a termite condition can be completely controlled through the application of chemical insecticides and any major damage can be repaired.

A complete termite inspection consists of an interior and exterior check of that portion of the house that is close to, or in contact with, the ground. The exterior inspection consists of the inspector probing the attached wood trim, posts, and framing members that are on or close to the ground. Probing garage doorframes, basement or lower-level window frames, step stringers, deck posts, and the entry-door riser. Termite activity is of concern only when it is found in the house or in an attached structure such as a garage or deck. If you find termite damage or shelter tubes on wood debris on a fence post in the yard or in a piece of wood debris on the ground in the yard, all that means is that those pieces of wood have had termite infestation. It does not mean that the house is infested with termites and should be treated. The interior inspection for termites is generally conducted in the basement and crawl space. The inspector should be looking for termite shelter tubes and/or damage to sill plates, headers, and joists below grade or adjacent to a dirt-filled, cement-covered patio.

If an active termite infestation is found, chemical treatment by a professional is necessary.

### **Wood Boring Beetles**

There are over ten different classes of wood boring beetles. We will only discuss the two most common types of beetles in our area. These two beetles are the powder- post beetle and the old house borer. For the most part these two beetles are usually brought into the house via the wood that had been used in its construction. Building materials might become infested while being stockpiled in the lumberyard. The beetles lay eggs in the open pores, cracks, and crevices in the surface of unfinished wood. After the eggs hatch, the larvae feed and tunnel they're way through the wood, reducing it to a powder. Depending on the temperature and moisture content of the wood, the larval stage can be as short as a few months or as long as a few years.

Inspection for powder post beetles and the old house borer should be performed along with the inspection for termites. When probing the exposed wood-framing members, look for the small round and oval emergence holes of the beetles. Since the beetles must emerge from these holes, the fact that there are emergence holes does not mean that the wood member is currently infested. Newly formed flight holes are light and clean in appearance, as a fresh saw cut; older holes are darker in color. Statistically speaking, Homechek has found that of all the homes it has inspected and found beetle evidence in the wood members that only 10% of them were active. In fact, the wood members that are no longer beetle infested will still have small amounts of larvae's frass continue to sift through the holes for many years as result of normal vibrations of the wood. The structural damage caused by these two beetles is generally cosmetic in nature and does not affect the structural integrity of the home. It takes an extremely large infestation and years of existence for major structural damage to occur in the home.

Replacing that piece of wood or coating it with an appropriate insecticide can often control an active infestation in a single wood framing member. However, if an active infestation is widespread, chemical treatment by a professional is necessary.

### **Carpenter Ants**

Carpenter ants are easy to recognize. They are among the largest ants in the United States, worker ants varying in size between 1/4 to 1/2 inch long. They are black or black with a reddish brown midsection. A carpenter ant colony can be located on the ground in a decaying log or tree trunk or in the roof framing of a house. The ants also nest high in trees and can fly from there to set up new colonies in a house. They build their nests in a variety of locations, preferring wood that is moist or softened by decay. Carpenter ants differ from termites in that they do not eat wood. They merely excavate it to build a nest. Damage from carpenter ants is generally minimal and does not require repairs.

Inspecting a house for carpenter ants, the inspector should look specifically at sections of wood that have begun to decay as result of a past or current moisture condition. Typical locations to inspect are portions of the wood framing, siding, or trim that are in contact with the ground; wood that has been dampened by the overflow from defective roof gutters; the area around a damaged section of siding or flashing; the base of hollow porch posts and column, and areas with large open joints as might occasionally be found around exterior windows and doors. These areas should be probed with a screwdriver or an ice pick. If the wood yields, breaks, or cracks and ants come crawling out, there is a good chance that the nest has been located.

If the nest is found, it can be treated directly with insecticide. If not, dusts or sprays can be used where the ants are commonly seen. The latter might not eliminate the infestation, but it should reduce it.

When searching for a company to perform the wood destroying insect infestation inspection, it is important to choose a company that does not treat. This way you can be assured that you are getting a fair and impartial inspection. Also check to see if the Inspection Company offers any kind of guarantees. Typical costs for a wood destroying insect infestation inspection range from \$40-\$95.

### **RADON TESTING**

Radon is a radioactive gas that has been found in homes all over the U.S. It was not until December 1984 that it was realized that people in homes could also be exposed to high

concentrations of Radon. A worker in a nuclear generating plant triggered a radiation detection monitor as he entered the plant. It turned out that his home had twenty times more radiation than is allowed in a uranium mine. Radon comes from the natural breakdown of uranium in soil, rock and water and gets into the air you breathe. It typically moves up through the ground to the air above and into your home through cracks and other holes in the foundation. Your home can trap radon inside. Sometimes radon enters the home through well water.

Any home can have a radon problem. This means new and old homes, well-sealed and drafty homes, and homes with or without basement. In fact, you and your family are most likely to get your greatest radiation exposure at home. That is where you spend most of your time. Nearly 1 out of every 15 homes in the U.S. is estimated to have elevated radon levels. In fact the Surgeon General has warned that radon is the second leading cause of lung cancer in the United States today. Elevated levels of radon gas have been found in homes in your state. Contact your state radon office or a Homecheck office near you for more information about radon in your area.

Testing is the only way to find out a home's radon levels. EPA and the Surgeon General recommend testing all homes below the third floor for radon. The concentration of radon in the air is measured in units of picocuries per liter of air (pCi/l). Based on currently available information, the EPA has set guidelines for radon levels in residential structures. Their "action level" is 4 pCi/l; that is, no action is needed if the radon concentration is below 4 pCi/l. The most accurate method of determining the average annual radon concentration is a long-term test. However, since time is usually limited in Real Estate transactions, a long-term test is not practical, and consequently a radon device with a test period of two to seven days is generally used.

The most common radon testing devices used are the continuous electronic radon monitor, charcoal canisters, and the E-Perm. These devices are to be placed in the lowest livable area of the home without major renovations. They should be left there for a minimum period of two days and then retrieved for analysis. The continuous electronic radon monitor is the most reliable of the radon detection devices and is the least susceptible to tampering. They record hourly radon levels as well as an average radon reading whereas the charcoal and E-Perm devices only give an average radon reading. The continuous electronic radon monitors also provide fast test results.

If after a house is tested it is determined that it has a high radon concentration, do not panic. Fixing a radon problem is just another home repair, easily and inexpensively performed by an EPA or state qualified contractor. A number of methods have been successful in reducing radon concentration levels in buildings to a point below the "action level." A typical mitigation procedure that is very effective is to use 4-inch plastic pipe with an in-line fan that vents the radon gas from below the floor slab to above the roof. Although, the cost may vary depending on the size and design of the home, it seldom runs more than \$800-\$1500. It is important to note that Radon control systems in no way diminish the dollar value of the home and are accepted nationally as a home improvement.

Typical costs for a Radon test can range from \$100-\$125.

## **WATER ANALYSIS**

Domestic water is generally supplied to homes through private well or public water companies. Water supplied by public water companies is usually safe to drink and does not pose a health risk. The quality of the water supplied by these companies is periodically checked because it must comply with rigid standards set by the U.S. EPA. Water supplied by a private source is also usually safe to drink, however, it can be contaminated by harmful bacteria resulting from faulty septic tanks, chemicals from a toxic spill that occurred years before, leaking underground storage tanks, or pesticides and fertilizers. The only way to tell whether the water is potable is to have it tested.

Generally a conventional loan for a property with a private water source will require only a coliform bacteria test be completed. Concerned buyers may also choose to have other water testing done in addition to the coliform bacteria test. These additional tests may include any of the following: pH, Nitrates, Iron, Copper, Detergents, Hardness, Lead, or volatile organic compounds (VOC's). VOC's are generally conducted only if there is concern that a landfill and/or industrial

contamination is known to exist in and around the property. For FHA and VA loans the following private water source tests will be required: total coliform bacteria, Nitrates, pH, Copper, Iron, Hardness, and Total Solids. A lead in water test in addition to the other tests mentioned is required for FHA loans only.

### ***Total Coliform Bacteria (TC)***

Most coliform bacteria do not cause disease, but they are present in the intestines of all warm-blooded animals. Therefore, if these bacteria are present in a water supply, sewage or manure may be contaminating the water. The prescribed limits for coliform bacteria are zero colonies/100ml. In layman's terms, anything reading over zero is not acceptable and must be corrected. In many instances when a bacteriological test indicates that water is contaminated with coliform bacteria, the source of the pollution may be temporary and contamination can be eliminated through shock chlorination. The source of pollution, if it can be identified, must be eliminated. It may be necessary to extend the well casing above the surface of the ground, divert surface runoff away from the site, and install a sanitary seal in the open end of the casing. Shock chlorination can be accomplished by mixing a strong chlorine solution with the water in the well and letting it stand for a few hours. A copy on how to shock a well can be obtained from Homecheck, Inc. Shocking a well is a temporary treatment, and may not always put an end to the bacteria contamination. A bacterium retesting is recommended at least twice a year.

A faster and more complete method to disinfect coliform bacteria from water is the Ultraviolet light (UV). The equipment consists of ultraviolet light tubes encased in steel cylinders or disinfecting chambers. Water enters a cylinder at one end, passes through it, over and around the UV tubes, and out the opposite end. Bacterial organisms exposed to the UV light are destroyed or inactivated. Unlike chlorination, there is no taste or odor imparted to the water and there is no measurable residual of any description that can assure that water thus disinfected will remain safe for human consumption. Most ultraviolet units are easy to install and maintenance on them is minimal.

### ***pH***

The pH test determines the acidic or alkaline content of your water and often directly affects other parameters in the chemical test. Water with a pH less than 6.5 or greater than 8.0 may cause pipes to corrode and release metals into the water such as copper, lead, and zinc. A high copper content can cause nausea and associated symptoms, while lead has frequently been proven to be a poison. An Acid Neutralizer is the device used to correct a pH problem in the water.

### ***Iron (FE)***

A high concentration of iron gives water a metallic taste, stains clothing and fixtures, and promotes the growth of iron bacteria in the water system. The limit set for iron in water is 0.3 milligrams per liter. An Iron Filter is the device used to correct high iron content in water.

### ***Nitrites (NO<sub>2</sub>)***

Nitrites are an intermediate oxidation state of nitrogen. Such oxidation may occur in runoff from fertilizer use, leaching from septic tanks, sewage, and erosion of natural deposits. Nitrite is the actual etiologic agent of methemoglobinemia (blue baby syndrome) in infants and ruminant animals. If drinking water contains excessive nitrates, do not give the water to infants under six months of age, or to pregnant women. Do not use the water to prepare infant formula. Boiling the water will only increase the nitrate concentration. A Reverse Osmosis or an Ion Exchanger is the device used to control high nitrates in water.

### ***Nitrates (NO<sub>3</sub>)***

Nitrate contamination of drinking water is important because of its effect on human and livestock health. Excessive concentrations of nitrate can cause methemoglobinemia (blue baby syndrome) in infants and ruminant animals. To protect people and livestock, a water quality

standard of 10 milligrams per liter nitrate nitrogen has been set human consumption and 100 milligrams per liter for livestock. If drinking water contains excessive nitrates, do not give the water to infants under six months of age, or to pregnant women. Do not use the water to prepare infant formula. Boiling the water will only increase the nitrate concentration. A Reverse Osmosis or an Ion Exchanger is the device used to control high nitrates in water.

### ***Copper (CU)***

The formation of copper in water occurs during corrosion of interior household and building pipes. Copper amounts are worse in water where the pH is in the acidic range. Levels of copper in water exceeding 1.0 milligram per liter can result in a number of complications. These complications may include Wilson's disease and many other stomach and intestinal problems. An Acid Neutralizer is the device used to correct high copper content in water.

### ***Total Dissolved Solids (TS)***

Levels for total dissolved solids in water have been set at 500 milligrams per liter.

### ***Hardness***

The hardness of water is defined in terms of its ability to produce soapsuds. Water that is too hard requires large amounts of laundry soap and can cause a white film to develop on the skin and plumbing fixtures, while water that is too soft creates difficulty in rinsing soap from laundry and causes a slippery feeling when bathing. Hardness has also been linked to calcification of the brain and kidney stone development. Limits on water hardness are set to personal preference. The most common method of water softening for an individual water system is the ion-exchange material used in water softeners. Water softeners are available as fully automatic, semi-automatic or manual units.

### ***Lead (PB)***

The EPA has indicated that some 40 million people have been using drinking water containing potentially hazardous levels of lead. The problem does not originate with the water supply but with distribution piping, solder used at the pipefittings, and fixtures in the house. In some older homes the inlet water pipe is made of lead; the solder used on pipe fittings in homes built before 1988 contained lead; and lead is contained in the metal alloy used in the manufacture of man faucets. The most important factor causing a high concentration of lead in water is the contact time between the water and the lead. Water that is slightly acidic or soft (water that makes soapsuds easily) is corrosive and reacts with lead. When the water stands in pipes or faucets that contain lead for several hours without use, there is a potential for lead to leach, or dissolve, into the water. The current federal standards limit the amount of lead in water to .015 milligrams per liter. An Acid Neutralizer is the device used to correct high levels of lead in water.

Typical costs for a coliform bacteria test range from \$25-\$50. Typical costs for the FHANA water series range from \$75-\$150. A lead in water test is required for all FHA loan and costs range from \$30-\$75 for this test.

## **ONLOT WASTEWATER TREATMENT SYSTEM INSPECTON**

Onlot wastewater treatment systems commonly referred to as a septic tank system are individual wastewater treatment systems that use the soil to treat small wastewater flows, usually from individual homes where public sewers are not available. They are typically used in rural or large lot settings where centralized wastewater treatment is impractical. There are many types of septic systems in use today. While all septic systems are individually designed for each site, most septic systems are based on the same principles.

A standard onlot wastewater treatment system consists of a septic tank, a distribution box and a drainfield, all connected by pipes, called conveyance lines. Your onlot wastewater treatment system treats your household wastewater by temporarily holding it in the septic tank where heavy solids and lighter scum are allowed to separate from the wastewater. This

separation process is known as primary treatment. The solids stored in the tank are decomposed by bacteria and later removed, along with the lighter scum, by a professional septic tank pumper. After the partially treated wastewater leaves the tank, it flows into a distribution box, which separates this flow evenly into a network of drainfield trenches. Drainage holes at the bottom of each line allow the wastewater to drain into gravel trenches for temporary storage. This effluent then slowly seeps into the subsurface soil where it is further treated and purified (secondary treatment). A properly functioning septic system does not pollute groundwater.

Testing the performance of private onlot wastewater treatment systems can be a very difficult procedure. The person or persons, to whom you are under contract, must be advised as to what is possible and what is impossible when offering an opinion as to the condition of the system or systems. The inspector should define what it is he or she can report "clearly" or cannot be expected to report due to the fact the system to be inspected is underground and not visible.

The method used when conducting a proper onlot wastewater treatment system inspection includes both visual and destructive testing. An onlot wastewater treatment system test should include the following items: having access to the tank's manhole cover to visually inspect the inside of the tank, rodding the absorption or leaching field checking for breakdowns in the soil, running the plumbing system throughout the house, and having the tank or tanks thoroughly pumped and cleaned. A dye test can be used if a problem is diagnosed in the system and the inspector wants to try and find its origin. The reason a dye test should be used after a problem is found is because the dye normally will not surface for days if at all. Many times dye is used in lieu of the other important tests and a false sense of security is given because the dye did not surface. The fact that dye appears does not mean the system failed either but, rather a good possibility a pipefitting is broken or leaking. .)

Inspecting the performance of an onlot wastewater treatment system on a vacant property is hard to accomplish. Often times the property does not have any appliances available to test the water quantity going into the system. A hydraulic load test is generally recommended to be performed on vacant properties. This is an extensive and costly procedure that requires several days to complete.

Further information about private on site onlot wastewater treatment systems can be obtained through the Pennsylvania Department of Protection, your local sewage enforcement officer (SEO) and Homechek, Inc.

Typical costs for an onlot wastewater treatment system inspection ranges from \$225-\$500. A hydraulic load test on an onlot wastewater treatment system can typically cost between \$500-\$1000.

## **LEAD BASED PAINT TESTING**

In 1978, the U.S. government banned the use of lead based paint for residential use. Paint with lead levels above thresholds determined by the federal government is considered "lead-based." Although some lead-based paint is found in over 80% of pre-1978 housing, its mere presence is not a hazard. Properly maintained and managed, lead-based paint poses little health risk. Lead hazards, however, pose a potential immediate risk, especially to young children and pregnant women. According to the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as "Title X," lead-based paint hazards include: deteriorated lead-based paint; lead-contaminated dust; lead-based paint on surfaces that can rub or bind; and lead-based paint on surfaces that can be mouthed by young children.

In accordance with Title X, the Federal government published regulations that require new lead disclosure activities in all residential housing built prior t 1978 before a sales contract can be binding. Real estate agents and sellers involved in home sales share the responsibility for meeting the following requirements: Sellers must disclose surfaces known to contain lead-based paint and lead-based paint hazards and provide these reports to buyers; seller must give buyers a copy of the federal pamphlet Protect Your Family from Lead in Your Home or an EPA-approved state version; homebuyers will get a IO-day period during which time they may obtain a lead-based paint inspection or risk assessment at their own expense; and sales contracts must include certain notification and disclosure language.

Homebuyers can evaluate lead problems by having a trained and qualified professional conduct either a lead-based paint inspection or risk assessment. An inspection determines if

painted surfaces are covered with lead-based paint by measuring the lead content in the paint with an XRF (X-ray fluorescence) machine. However, an inspection does not determine whether the paint presents an immediate hazard, nor does it suggest remedies. Risk assessments, in contrast, identify immediate lead-based paint hazards that a family would be exposed to if they moved into the house in its current condition, and they identify options to remedy any such hazards. Assessors also look for lead hazards by measuring levels in household dust and soil.

It is important to note Title X does not require purchasers to investigate lead hazards, nor does it require sellers to take any specific action to fix lead problems. Instead, it is designed to provide home buyers with more information on lead hazards and give them the option of further investigating if lead-based paint or lead hazards exist. If a lead evaluation reveals lead-based paint or lead-based hazards, nothing in the law requires sellers or purchasers to correct the conditions or remove lead paint.

Costs for a Lead Based Paint test range from \$250-\$600.