



A CONSUMER HOME
.....
INSPECTION
.....
KIT

A Consumer Home Inspection Kit—now also available in Spanish as *Manual de inspección para el comprador de vivienda*—is provided by Freddie Mac as an aid in homeownership education programs. This booklet is not intended to be a replacement for a professional home inspection and should not be relied upon as a definitive and exclusive home inspection tool.

Special thanks to HomeTech Information Systems, Inc. of Bethesda, MD for the technical content of this publication.

Table of Contents



Introduction

Use of This Kit by the Homebuyer	1
Before You Conduct a Consumer Home Inspection	2
Helpful Hints	2
What to Expect	3

Section I:

Three Steps of the Consumer Home Inspection	5
---	---

Step 1: Interviewing the Owners and/or Occupants	6
---	----------

Step 2: Conducting the Consumer Home Inspection	8
--	----------

GENERAL OBSERVATIONS THROUGHOUT THE HOME

Floor Plans	8
Walls and Ceilings	8
Windows	9
Doors	10
Closets	10
Fireplaces and Wood-Burning Stoves	10
Floors	10
Insulation	11
Ventilation	11

BASEMENTS

Water Problems	14
Basement Apartments	15

SYSTEMS

Electrical Service	15
Heating and Air Conditioning	17
Plumbing	18
Water Heaters	18
Pipes	18
Waste Plumbing	19

KITCHENS AND BATHROOMS

The Kitchen	20
The Bathroom	20

EXTERIOR

Exterior Drainage	21
Exterior Finishes (Siding)	22
Garages	23
Gutters and Downspouts	23
Roofs	23
Asphalt or Fiberglass Shingle Roofs	23
Slate Roof	24
Wood Shake and Cedar Shingle Roof	25
Fire Retardant Treated (FRT) Plywood Roof	25
Flat Metal Roof	25
Selvage or Asphalt Roll Roof	25

Step 3: The Final Analysis	26
Costs of Remodeling, Renovation and Repair	26
Value of Work Already Completed	27
Cost Comparison of Materials	27
Estimating Maintenance Costs	28

Section II: Glossary

Glossary of Home Inspection Terms	29
Bibliography for Glossary	33

Section III: Exhibits

Schedule of Normal Life	34
Schedule of Estimated Remodeling and Repair Costs	35
<i>Maintenance and Replacement Cost Estimator Form</i>	37
<i>Maintenance and Replacement Cost Estimator Instructions</i>	38
<i>Consumer Home Inspection Form</i>	40
<i>Instructions for Consumer Home Inspection Form</i>	45

Introduction

Use of This Kit by the Homebuyer

The purpose of this kit is to give you the tools you need to select and maintain the right home for you. We think you'll agree that the right home for you is affordable, comfortable and within your means to maintain for as long as you choose to live in it.

This kit offers insights that will help you make an informed decision in your choice of a home. Affording a home involves more than having enough money to cover the down payment, closing costs and monthly mortgage obligations. Maintaining the overall condition of the home while you live in it—and the repairs or preventive measures needed to do so—can be just as costly.

This kit will explain how to conduct your own consumer home inspection with an easy-to-use, step-by-step approach. Once you've evaluated your results, you'll be better equipped to make a wise decision, whether it's

“Yes, I like this home; it suits the needs of my family, and I can afford to buy *and* maintain it.”

or

“No, I cannot realistically afford to buy and maintain this home.”

Either way, it pays to know what you're up against *before* you make an offer to purchase.

The consumer home inspection does not replace the professional home inspection. You do the consumer home inspection before making an offer to purchase a home. Once you conduct your own consumer home inspection and make a decision to buy a particular home, you will sign a contract and have the home you've selected professionally inspected. The professional home inspector gives you an objective and comprehensive report before closing.

In addition, you may want to have the home tested for possible environmental hazards which are not usually visible, including, lead in the water, lead in paint, asbestos, radon or other toxic materials.

The best use of the consumer home inspection is to

- ✓ Make sure you can afford to buy your home and maintain it
- ✓ Equip yourself with the tools you need to make an educated decision in your own best interest
- ✓ Learn what's ahead of you *now*, rather than down the road

An informed homebuyer is a successful homeowner.

Before You Conduct a Consumer Home Inspection



Schedule your home inspection during daylight hours. You may want to bring along the following tools

- ✓ The *Consumer Home Inspection Form*
- ✓ A powerful flashlight to use in basements and crawl spaces
- ✓ A stepladder to look in the attic to check insulation, the underside of the roof and indirect lighting fixtures
- ✓ A tape recorder to record any information too lengthy to note on the inspection form
- ✓ A circuit tester to check the circuits

Helpful Hints



Plan to go through the home completely two times so you can do an overall analysis. Remember to consider the following when you conduct your home inspection so you can effectively evaluate the home:

- ✓ The existing condition of all systems and equipment
- ✓ Any unusual features that may increase or decrease the appeal of the home
- ✓ Any problems or features you want your professional home inspector to check out

- ✓ The quality and condition of the structure
- ✓ Routine house cleaning and maintenance items: paint, furnace filters, gutters, caulking in bathrooms, landscaping, floors, appliances, walls, etc.

What to Expect



A *Consumer Home Inspection Kit* will give you the information you need to

- ✓ Identify a home's distinguishing features that make it attractive for purchase
- ✓ Estimate the costs and identify solutions for any problems uncovered during the consumer home inspection
- ✓ Provide a basis for comparing homes you are considering buying

A Consumer Home Inspection Kit is provided by Freddie Mac as an aid in homeownership education programs. This booklet is not intended as a replacement for a professional home inspection and should not be relied upon as a definitive and exclusive home inspection tool.

Section I: Three Steps of the Consumer Home Inspection

There are three major steps you should take when conducting a consumer home inspection

- ✓ Interviewing the owners and/or occupants
- ✓ Conducting the consumer home inspection
- ✓ The final analysis

Just follow the easy-to-use guidelines in this section.



Step 1: Interviewing the Owners and/or Occupants



It's possible to collect a tremendous amount of useful information before you conduct the consumer home inspection by sitting down with the sellers or occupants. Ask open-ended, leading questions. You may begin by asking the occupants these questions:

- **Are you aware of any termite damage or activity in your home?** Virtually all homes sold today require a termite inspection and certificate so a complete history of any damage, treatment or repair is important to know from the start.
- **Does your home have any existing or repaired structural problems, such as cracks in the basement floor, rotted floor joists or settlement cracks in the walls?**
- **Do you ever have moisture in your basement?** A typical concern when buying a home is a wet basement or crawl space. It's important to learn about a wet basement early so that it can be repaired or you can negotiate the price of repair before you buy the home.
- **Have you seen any signs of a leaking roof?** If the roof has leaked in the past, it's important to determine whether repairs were made or a new roof was installed. If the home has an asphalt/fiberglass shingle roof, which normally lasts 15 to 18 years and the home is 17 years old, ask if the roof has been replaced recently. A professional home inspector can determine this for you.
- **Have you experienced any problems with the heating or air conditioning systems?** Find out the ages of the heating and cooling equipment and any problems the occupants may have had with the systems.
- **Have you tested your home for radon recently?** The risks from radon gas vary greatly in different parts of the country. Contact the local environmental protection agency to obtain information about the presence of radon in the area.
- **Is the electrical service satisfactory?** Find out the capacity of the electrical service and whether the occupants have had problems, such as fuses blowing frequently, circuits overloading, outlets not working or lights flickering when appliances are turned on.

- **What is the condition of the plumbing system?** Find out about the water pressure, whether the plumbing leaks, whether there's enough hot water, the age of the water heater and whether the system has been updated in any way.
- **Have you remodeled or made improvements to your home?** If improvements have been made to the home, inquire about the competence of the individual or company who provided the service. Check the credentials of the person who made the improvements, to make sure he or she is a licensed builder, owner or technician.
- **Was your home built before 1978? Before 1960?** Some homes built before 1978 and many homes built before 1960 contain lead-based paint. If the paint is chipping, peeling, cracking, flaking etc., and contains lead, it may be dangerous especially for children under age seven. You may wish to inquire specifically if the home contains lead paint or if it has ever been tested for lead paint.

Step 2: Conducting the Consumer Home Inspection



It's time to begin your home inspection. Be sure to inspect each of the items listed below to perform a complete evaluation of the home.

GENERAL OBSERVATIONS THROUGHOUT THE HOME

Floor Plans

When inspecting a home, consider its layout and the following factors

- ✓ In large homes with only one bathroom, you should consider the cost of installing a second bath on the bedroom level or a powder room on the first floor.
- ✓ Look at the amount and quality of storage space. Does it fit your needs?
- ✓ Check to see if the home plan provides separation between personal and shared areas. The room layouts and circulation patterns should allow for flexible furniture arrangement.
- ✓ Notice whether the parking space is convenient and provides for guest parking.
- ✓ Check for convenient layout. For example, the laundry room should be close to where the laundry is generated, ideally, on the second floor. Also, the refrigerator door should open toward the counter and work space of the kitchen.

Walls and Ceilings

In nearly all homes built before World War II, the walls and ceilings were made of plaster. While the exterior walls in a brick home built before 1935 are usually built with the plaster directly on masonry, the walls are very solid, though they don't provide for air space or prevent condensation.

The interior walls and ceilings in a home built before 1935 are usually made of plaster on wood lath. Over time, wood lath loses its resilience and pulls away from the studs or joists, causing waves in the

walls or ceilings. This condition is usually more pronounced in ceilings because the weight of the plaster plus walking on the floor above creates movement. In addition, wood lath is easily affected by any moisture from a roof, plumbing leak or humidity in the attic.

- ✓ Check to see if wallpaper over wood lath and plaster has been painted. If you try to remove the painted wallpaper, you may damage the plaster.
- ✓ Check for walls and ceilings that are made of rock lath and plaster, which is common in homes built between 1935 and 1950. Typically, these are very high quality.
- ✓ Check the condition of drywall walls and ceilings. Pay particular attention to the condition of taped joints.

Windows

As you conduct your home inspection, be aware of the many different types of windows in the home and their condition. In some jurisdictions, fire codes require that windows operate and that bedroom windows be large enough to escape through in case of fire.

Steel casement windows, for example, are not generally considered to be quality windows because they become sprung, readily conduct cold air into the home and will only take piggyback type storm windows. Replacement hardware is available but is becoming increasingly expensive. Steel casement windows can easily be replaced with new, double-hung vinyl replacement windows.

Wood double-hung windows are very common, especially in older homes. They're likely to be in good condition and storm windows will usually make them more energy efficient.

Aluminum sliding windows, which were often installed in the 1950s, are inexpensive but serviceable. They are now available with insulated glass, but storm windows are usually less expensive.

Jalousie windows do not provide adequate insulation and leak air at a tremendous rate.

- ✓ Open the windows to ensure that they are not painted shut. Check the casement window to see if the hardware is working properly and whether double-hung windows have broken sash cords.

Doors

- ✓ Exterior doors should be the solid or panel type and should have good weather-stripping and thresholds.
- ✓ Check interior and exterior doors to see if they are level, easy to open and close, and have hardware in good condition.
- ✓ Check aluminum and wood sliding doors to see if they have single pane or insulated glass; the latter is much more energy efficient.
- ✓ Check bi-fold closet doors throughout the home. They may be steel, wood or masonite. Wood is the best quality.

Closets

- ✓ Note the number of closets, their condition and depth.

Fireplaces and Wood-Burning Stoves

Fireplaces are a popular selling feature, but you should carefully examine them during your home inspection.

- ✓ Look up the chimney to see whether the flue is lined with terra cotta. Ordinary brick lining is in violation of most codes. It is usually unsafe. Though rare, a chimney of ordinary brick to a thickness of 12 inches on each side is acceptable. The cost of relining a chimney with terra cotta is about \$2,000.
- ✓ Check to see if there is a working damper in the fireplace. If there's not, home heat will escape up the chimney unless the opening is closed and the fireplace is not used. Newer fireplaces may have cap dampers, which are reported to be more energy efficient.
- ✓ Ask the owners to have the chimneys cleaned before you buy the home. Chimneys should be cleaned annually.
- ✓ Check to see if the metal flues of wood-burning stoves or fireplaces are clean.

Floors

- ✓ If the floors are carpeted, check to see if the carpeting covers hardwood or plywood floors. In newer homes, plywood is typically used. Hardwood floors are better and usually considered to be a distinguishing feature.

- ✓ Check the condition of the floors or carpet. Ask the seller to replace the carpet or other floor covering or to refinish wood floors if necessary.
- ✓ Check for moisture damage to parquet floors. In older homes, the parquet is made of strips of wood glued into nine-inch square blocks. This flooring is extremely sensitive to moisture and can swell and buckle when exposed to dampness. A newer type of parquet flooring is made of one-half-inch or three-quarter-inch plywood with a hardwood and laminated finish. This flooring is much less sensitive to moisture and can be safely installed even below grade at the basement level.
- ✓ Determine if the house has asbestos floor tiles. The asbestos in the tiles is “cementitious,” that means the asbestos fibers are bound in place within the tiles and probably cannot become airborne, potentially breathable and therefore a health hazard. If you choose to have asbestos-containing tiles removed, be sure the work is done by qualified, certified professionals.

Insulation

As fuel costs continue to rise, insulation is an increasingly important consideration in a home. It’s usually difficult to tell whether insulation exists within the walls of a home. As a rule, if the home has little or no attic insulation, there is probably none in the walls. If the attic is well insulated, the walls probably will be too, depending on the age of the home.

The R-factor is the unit of measurement of insulating value in a home. It refers to how well a material resists conductive heat flow. The higher the R-factor, the greater the insulating value. The recommended R-factors are

- ✓ R-11 to R-15, for walls
- ✓ R-19 to R-30, for ceilings

Ventilation

Use the following rule of thumb when inspecting a home’s ventilation: adequate ventilation in an attic is one square foot of ventilation for each 150 square feet of floor space. In most homes, you can reach the attic through a ceiling access panel if there is no stairway. Suburban homes built after World War II usually have an attic access in the center hall at

top of the stairs or in one of the closets. Older urban row homes have an attic access that may also serve as access to the roof. You will normally find it in the bathroom, hall, closet or on a rear porch.

BASEMENTS

It is important to inspect the basement carefully. All the major mechanical, plumbing and heating systems in a home are usually located in the basement. It is also the only part of a home where exposed piping, wiring and framing can almost always be seen. Foundation or structural problems may also be detected in the basement, and they typically affect the entire home.

- ✓ Check the basement walls for large cracks or any noticeable defects. Also look for signs of movement, particularly in an older home. Hairline vertical cracks along the mortar joints and concrete block are not usually causes for alarm. A crack that indicates a serious problem will be at least 1/4-inch wide all the way through to the outside wall. In some cases, horizontal cracks that are 1/2-inch wide or wider, and have caused the wall to bow out, stem from pressure building up behind the wall from the outside. In order to correct the problem, this pressure must be relieved. Be sure to have your professional inspector check this.

If the cracks are very wide and there's been significant settlement, the footings or foundation were probably poured on fill ground. In this situation, it might be necessary to underpin. Your professional home inspector will be able to determine the extent of and solution to the damage. Be aware that settlement cracks in a basement floor slab are not usually structurally significant, but they may indicate either the compacting of fill dirt on which the slab was poured or the presence of an underground spring.

- ✓ Examine the condition of the mortar between the bricks or cinder block when you look at the basement walls. In many older homes, the original mortar will have deteriorated and need pointing up in order for the wall to maintain structural integrity.
- ✓ Check all the wood structural members in the basement for signs of rot or termite damage. In most parts of the country, termites are subterranean and will almost always be found where the wood is close to the ground.

- ✓ Pay particular attention to the sill plate around the perimeter of the exterior walls (the 2x6 or 2x8 that is bolted to the top of the masonry foundation walls). Termites can also enter where there is concrete on the exterior, for example, under a concrete porch or around a fireplace hearth.
- ✓ Look for signs of work done since the home was built. If additional support columns were installed, for example, it's important to determine why it was done. It might mean the home has a structural defect.
- ✓ Inspect the deterioration of materials and other factors that might affect the livability of the home. For example, if the basement is not at least 7-1/2 feet high, it will probably not be usable as living space. While some codes permit a basement recreation room or bedroom to be as low as 6-1/2 feet high, 7-1/2 feet is considered the minimum for living standards.
- ✓ Be aware of unfaced stairs, deteriorated stair treads, leaky doors, and windows that are frozen open or shut.
- ✓ Check for the presence of asbestos. This can only be *verified* by an expert, but can be spotted in heat pipe coverings in older homes, packing material on old hot water and steam boilers and fireproof materials in furnace rooms. If your professional home inspector finds it, you may wish to leave it in place, if it is in good condition, not friable and not likely to deteriorate. Or you may want to negotiate the cost of having it removed or encapsulated.
- ✓ Ask the current owner if the home has been checked for radon; if not, make the purchase offer contingent upon a radon test. Radon is an odorless, colorless gas that may seep into the house from the soil. Radon is known to cause cancer. A ventilation system may take care of a radon problem.
- ✓ Hire a termite inspector to check the crawl space for termite activity or damage to the home you have selected. This is usually done after the contract is ratified but before closing. If there's no access to the crawl space, you won't be able to identify termite activity or possible structural damage.

Water Problems

While the vast majority of basement water problems can be solved by controlling roof and surface water, some may require a more expensive solution because of local conditions. It pays to know the difference. One of the problems in owning a home is moisture in the basement or crawl space.

Be aware of the particular neighborhoods or locations in your area with a history of water problems due to a high water table, underground springs or other geographical or topographical factors. If you're in doubt, check with your local building or public works department.

- ✓ Check the exposed walls for white efflorescence indicating water building up behind the wall and for dark spots indicating additional water pressure. Pay particular attention to wood paneling or wallboard for signs of moisture at the base of the wall or any buckling in the wall. If the floor tile is loose, pull it up to look for moisture underneath. Tile will not stay down if there's moisture. Standing water will cause discoloration at the seams.
- ✓ Check out-of-the-way places and behind items stored against the walls. Look for stains. Look around the furnace for rust marks and around window wells for moisture or signs of moisture in the past.
- ✓ Be aware of new concrete around the perimeter of the basement slab. If it's there, that usually means that the slab has been broken out and tied into a sump pump with a French drain installed. This might indicate a previous water problem. A properly installed drain tile and sump pump system will solve the problem. Be aware that many waterproofing contractors will sell and install an expensive French drain and sump pump when all that you need is better exterior grading and the right extension of downspouts from the gutter system.
- ✓ Check the grading outside to see whether gutters and downspouts are properly aligned and cleaned. Look for anything else that might indicate a roof and surface water problem rather than a high water table.
- ✓ If you find a water problem, check it carefully and have it checked later by a professional to determine whether it has been corrected or continues to be a problem. While most basement water problems can be corrected by controlling roof and surface water, you may want to have your professional home inspector check this.

Basement Apartments

- ✓ Check that the ceiling height is at least 7-1/2 feet over 70 percent of the area. A professional can help you determine if the recommended 1/2-inch fire code drywall ceiling separates the apartment from the first floor. It should be installed directly over the joists with all steel beams enclosed. The ceiling cannot be applied over wood lath. Stairways should be enclosed with fire code drywall and a Class B fire door. It's best to have a separate electric meter and service. You should consult local building codes and a professional to determine if the unit is legal.
- ✓ Look for a separate heating system for the apartment. Codes usually do not permit circulation of air between separate living units. If the heating system is a hot water system, a separate zone for the basement apartment is helpful, but not necessary.
- ✓ Check for a circulating pump on the boiler. If the heat comes only from exposed pipes, it will subside when the pipes are enclosed.
- ✓ Make sure the furnace room has outside ventilation and is enclosed with a fire wall and fireproof door. Many codes require that a wall area equal to one-eighth of the floor area includes windows or doors for proper light and ventilation.
- ✓ Check to be sure the home is zoned for a two-family flat and that there is an occupancy permit.

SYSTEMS

Electrical Service

- ✓ Determine the home's electrical capacity. On new circuit breaker or fuse boxes, the amperage is usually listed: 60, 100, 125, 150 or 200 amps. Residential capacity seldom exceeds 200 amps, even if almost everything is electric. Current codes usually require a minimum electrical capacity of 100 amps and in many jurisdictions, 150 or 200 amps. When a renovation includes electrical work, most jurisdictions require that the service be increased to the minimum requirement.

A 30- or 60-amp service box will be small, often containing only two to four circuits. A 100 amp service, which was normal residential capacity from the early 1950s to about 1965, is adequate if the home has gas appliances rather than electric. A 150-amp service should be adequate unless the home is very large.

If more than one service box exists, and the main capacity from outside runs directly into the first box, the total capacity is usually that of the first box. However, a long, narrow covered box or trough may exist into which the outside cable runs. If there is a trough, the service is almost always adequate and, depending upon the size of the line coming in, has an electrical capacity of 150 to 200 amps.

If the main electric line comes into a 60 or 100 amp box, with one or more boxes wired in series with the first, it usually means that additional circuits have been run without increasing the capacity. This may be a code violation.

- ✓ When you check the fuse box, look at the size of the individual fuses. Both fuses and circuit breakers are designed to prevent circuit overload. The difference is that the circuit breaker switches off when overloaded and needs only to be switched back on. Fuses, on the other hand, blow out and must be replaced.

In most homes with 60 amps or less, the circuits are 115 volt, with a maximum capacity of 15 or, at most, 20 amps. If you see 30 amp fuses, or all 20 amp fuses, chances are the fuses have been blowing frequently and the occupants have installed heavier fuses than are recommended or safe. If this is the case, the electrical service almost certainly needs upgrading.

- ✓ If you're inspecting an older home, check whether additional outlets have been installed. If you find a new 150 or 200 amp circuit breaker box, assuming the home has been rewired, and you discover there are only three to six circuit breakers in the box, the home has no new wiring even though total capacity exists.
- ✓ Most electrical codes require outlets every 12 feet or within six feet of any doorway so that extension cords more than six feet long are not needed. Homes built before World War II, with only one outlet per room, do not meet today's codes.
- ✓ Check to be sure that ground fault interrupter (GFI) outlets exist in bathrooms, garages, accessible outside decks and swimming pools. They are required by most codes. GFIs may soon be required in kitchens as well, on either side of the sink.
- ✓ Check to make sure that proper connectors have been installed on the outlets of aluminum wiring in homes built between 1960 and 1973.
- ✓ Note the presence or absence of smoke detectors.

Heating and Air Conditioning

When you inspect the heating system of an older home, you may find a hot water boiler with radiators. You can usually tell if the boiler is original equipment—the age of the home will indicate the age of the boiler. If a boiler is more than 30 years old, you should consider replacing it because it is near the end of its normal life cycle.

Hot water heating is considered to be a very acceptable type of heating system. Homeowners usually retain hot water heating even in very old homes unless a total renovation is done. Radiators tend to last indefinitely and the pipes seldom rust. If you look at a home that has been vacant over the winter, be sure to have the entire system tested professionally because it may need to be replaced if the pipes have frozen, cracked or burst.

In newer homes, you will usually find a warm air furnace with ducts. Warm air furnaces fueled by gas, oil or electricity are the most common types of heat used in homes today. The ductwork for a forced air system can also serve an air conditioning system making it the most economical original installation for both heating and cooling.

Make sure the system has a good humidifier that works by evaporation to prevent clogging because forced air heat is very dry. If the home has a basement humidifier, its heating costs will be lower. Humidifiers are often not maintained properly. A professional home inspector should be able to report if the system needs to be serviced.

Electric heat pumps are becoming increasingly popular because their operating costs are 30 to 35 percent less than other types of electric heat. Heat pumps work by transferring heat from outdoors to inside, like an air conditioner in reverse.

You may also find supplementary heaters in a home where the main system has not been extended to an enclosed porch, addition or finished attic. Operating costs are usually lower if heat can be extended from the main system to these areas. Many old homes do not have central heat at all or have antiquated or ineffective systems. If you find them, you should note them as problem areas.

You may also want to

- ✓ Identify the type(s) of heating and air conditioning systems in the home. Once you make the decision to purchase a home, we recommend that you have a professional inspector determine the condition and adequacy of the unit.
- ✓ Check to see if the system has ducts on the outside walls with both high and low registers and more than one return grill. If a home has high ducts or returns in every room, it's a high-quality system. If the system has only low ducts and one return grill on each floor, it will still provide adequate heating and cooling.

- ✓ Check to see if there is air conditioning. Central air conditioning is considered ideal although people are returning to individual air conditioning units to save money. Air conditioners have a normal life of eight to 15 years.

Plumbing

A solid, trouble-free plumbing system is a top priority for most homebuyers and is considered to be as important as a home's heating and electrical systems. You should inquire whether a home is on public water and sewer or has a well and private disposal system.

Water Heaters

There are three different types of water heaters: gas, electric and oil-fired. Check the capacity and installation date by reading the label affixed to the water heater.

Electric hot water heaters recover more slowly than gas heaters and must hold approximately 50 percent more to be equivalent. Oil-fired hot water heaters, with a typical 30-gallon capacity, are adequate for the average size family. These units normally last longer than others, but require more maintenance.

- ✓ Check the age and size of hot water heaters to see if they've been recently replaced or are of greater than average capacity.

Recommended Capacity Requirements

Number of Occupants	Gallons Recommended
2	30
5	40
6 and over	50

Pipes

The main water service coming into a home may be lead, galvanized or copper piping.

Lead is a confirmed toxin. Children under seven years old are especially susceptible. Lead pipes and lead solder used before 1986—when it was prohibited by the Environmental Protection Agency—can result in elevated levels of lead in tap water. This can be a hazard, particularly to young children. There are simple and relatively inexpensive tests you can use to determine if your water contains unacceptable levels of lead.

Galvanized water pipes were used in most homes built before 1935. From 1935 to 1942, galvanized pipe was used in approximately half of all homes and in about 10 percent of the homes built since World War II. These pipes will gradually rust from the inside out as the opening gets smaller. Galvanized pipes located in the basement with heavy rust buildup at the joints or piecemeal replacement with copper may have deteriorated and need replacing. Galvanized pipe may need to be replaced if it is more than 40 years old.

Copper is generally considered the best. Copper pipes have been used in quality homes since 1935 and almost exclusively since World War II. Copper pipes have different degrees of thickness but will usually last throughout the life of the home.

Plastic water piping (CPVC) is most often used in recent years for interior piping. Compared to copper piping, it's very cost-effective. However, there have been problems with polybutylene piping used for main water service coming into the home. A professional home inspector should check for the use of CPVC for main water service and interior piping.

- ✓ Be sure to check the water pressure in a home with galvanized pipes. Turn on more than one faucet in the kitchen or bath to see if the pressure drops as the second faucet goes on. If the first faucet stops, the pipes need immediate replacement. If the pressure drops a little, there's rust, but you can postpone changing the pipes depending upon your budget and the degree of renovation you are willing to undergo.

Waste Plumbing

In almost all cases, the presence of a leg tub in a bathroom indicates lead waste plumbing. If lead plumbing springs a leak, it cannot be repaired and must be replaced. Many local codes require that lead plumbing be changed if a bath is remodeled.

- ✓ Check to see whether the sewer pipe leaves the basement above floor level. Most sewer pipes go into the basement floor and out to the sewer, 10 feet below in the street. A working basement bath indicates the sewer pipe is below the floor level. A special pump is required to install a basement bath if the sewer line is above floor level. If you plan to convert the basement into an apartment or living unit, the presence of sewer lines above the floor will make the conversion difficult.

- ✓ Check with local health authorities or a plumber if you are looking at a home that does not have public water and sewer and is instead, served by a well and private disposal system. Most jurisdictions require that a new well have a concrete encasement to 20 or 30 feet below ground level to prevent ground water pollution.
- ✓ Besides checking the existing private disposal system, be sure there is sufficient suitable area with proper percolation for a new system. You should also find out the availability and costs of a public water and sewer system.

KITCHENS AND BATHROOMS

The Kitchen

The condition of a kitchen is a major consideration in the selling price of a home.

- ✓ Check the ages and condition of the appliances to determine when they should be replaced. The seller is usually a good source for this information. With experience you'll be better able to guess the age of most appliances by color and style. Turquoise and pink, for example, were popular in the 1950s; coppertone and avocado were common in the 1960s; harvest gold and bone white were colors of the 1970s. Floor styles change with the times as well.
- ✓ Look for minor problems, such as an oven door that won't open or a pilot light that is out.
- ✓ Check ovens and ranges for electric or gas operation.
- ✓ Check whether a range hood and fan is the filter type or vented to the outside. It's best to have a range hood with outside ventilation.
- ✓ Make sure there is sufficient cabinet, counter and eating space.
- ✓ Check the quality and condition of the cabinets.

The Bathroom

Until the early 1960s, bathroom tile installations were set in mortar bed. Although professionals consider it to be quality installation, it can only be removed with a sledgehammer. If you plan to remodel or change lead waste and water pipes, you must have ceramic tile removed. Today, most installations paste the ceramic tile onto plaster walls or waterproofed drywall.

- ✓ Carefully check the condition of the bathroom floor. If it has been poorly maintained or water has overflowed, the floor may be rotted and require replacement. If the floor is badly rotted, it may have affected the floor joists below. You can sometimes verify this condition by checking the ceiling below, where the plaster may have fallen away revealing the sub-floor and joists.
- ✓ Ask the seller if there have been any leaks or problems with a ceramic shower stall. A common plumbing problem in older homes is a cracked lead pan in a shower stall. Check the ceiling below for signs of moisture.
- ✓ Run all of the faucets.

EXTERIOR

Exterior Drainage

If properly located on its lot, drainage will be away from the home. Low areas around homes located on the low end of a fairly steep hill may collect water. A sump pump may be necessary to protect the home from moisture in the basement.

- ✓ Notice the areas around a home that have a high water table, sliding subsoil, underground springs, ledges or other similar problems. Surface grading should be highest next to the home so that water is carried away. If lot grading is correct, there should be no standing water in the yard 24 hours after it rains.
- ✓ Check for low spots around downspouts, standing water after it rains, signs of rot in wood, discoloration on brick or clogged downspouts. These are all signs that water is collecting next to the home and may be seeping into the basement.
- ✓ Notice whether patios, porches and driveways are slanting away from or toward the home. While it's relatively easy to regrade the ground, tearing out concrete and repouring it are expensive.
- ✓ Look at retaining walls because their replacement cost is high. Check for cracks or signs of movement indicating poor construction or maintenance. If moisture is caught behind a retaining wall, it will freeze and expand, causing cracks in the wall.

Exterior Finishes (Siding)

There are many different types of home siding, from traditional brick to vinyl—and often more than one type of siding exists on a home. Their looks and maintenance vary according to the type and condition of the materials. Aluminum siding, for example, looks similar to wood and the baked-on finish is almost maintenance-free. Vinyl siding has replaced wood in newer homes.

Asbestos siding is made of the same materials as an asbestos roof. Its permanent finish does not need painting but will accept paint well. Anyone removing it should be extremely careful to avoid breathing in asbestos fibers. Removing and replacing asbestos siding should be done by a qualified, certified professional. When hiring a contractor to evaluate the situation, make sure the contractor has no connection with any remediation or abatement firm.

Stucco, on the other hand, is considered by some to be a high-quality finish.

- ✓ Check to see whether water is behind the wood in English Tudor half-timber, half-stucco homes.
- ✓ Check to determine whether the stucco is on masonry or frame. A hollow sound indicates frame. Stucco on frame is extremely susceptible to water penetration, particularly at the home's corners and around windows and doors. Water penetration is more likely if the cracks between the stucco and wood trim are not properly caulked.
- ✓ Check brick siding carefully because it may need to be repointed and repaired. While ivy-covered brick walls are attractive, English ivy will damage the home's mortar, especially in older homes. Grape ivy may be less harmful but should be kept away from wood trim because it can grow under the rim.
- ✓ Check to make sure that wood clapboard siding is painted and away from moisture problems. While it will last the life of the home if well-maintained, wood clapboard siding should be carefully inspected for rotted boards. Pay particular attention to any wood close to the ground, a likely area for rot and termites.
- ✓ Make sure that composition siding board is well-maintained, painted and away from moisture to prevent deterioration.

Garages

A garage is an important selling feature of a home, with a replacement value of over \$7,500 for a single-car garage and over \$9,000 for a double-car garage.

- ✓ Be sure there is a fireproof wall, ceiling and door between an attached garage and the home. This should be 1/2-inch fire code drywall for the ceilings and walls or masonry and a solid core door. Make sure a two-car garage measures at least 20 X 20 feet and a single-car garage measures at least 14 X 20 feet. These measurements can be slightly smaller for compact cars.
- ✓ Remind the termite inspector to inspect the garage as well as the home for termites. Many old frame garages attract termites because the wood is resting almost directly on the ground.

Gutters and Downspouts

There are four major types of gutters: copper, aluminum, galvanized and vinyl. Copper gutters, considered the highest quality, last almost a lifetime. Aluminum gutters, the most commonly used material for gutters, have a permanent baked-on finish. Galvanized gutters, used 30 to 40 years ago, have a normal life of 15 to 20 years, and must be painted regularly both inside and out. Vinyl gutters, used in recent construction, are relatively maintenance-free except for cleaning.

- ✓ Check the condition and alignment of the home's gutters and downspouts.
- ✓ Make sure water is directed away from the home.
- ✓ Check to see if gutters and downspouts have pulled away from the home.

Roofs

Asphalt or Fiberglass Shingle Roofs

In the last 30 years, asphalt or fiberglass shingle roofs have been installed on most homes in the United States. They are durable, attractive, relatively inexpensive and designed to last 15 to 20 years.

- ✓ Check to see if an asphalt/fiberglass roof is aging. Evidence of aging includes exposed bare spots where the granules have worn away. You find this easy to see on a light-colored roof but more difficult to detect on a dark roof. If you're in doubt, try checking around the downspouts for granules collected at the outlets.
- ✓ If the shingles are pulling up at the ends, a condition known as "fishmouthing," the roof is deteriorating. The slots between the shingles, or keys, are the weakest part of the roof and will wear out quickly.
- ✓ Be sure to check the south side of the roof and the area with the lowest pitch. Because sunlight is the major cause of deterioration, these areas will wear out fastest, even while the other side of the roof appears to be in good condition. In this case, a second asphalt/fiberglass shingle roof is normally installed directly over the first roof without removing the first layer of shingles. Before installing a third roof, both of these layers are removed down to the sheathing.
- ✓ Look at the edge of the roof to see how many layers exist. If there are three layers of shingles on a roof, the roof may be unable to carry the extra weight of another layer and the nails won't go all the way into the sheathing.
- ✓ Ask the seller whether the roof has been replaced recently. If a home is 18 years old with the original roofing intact, the roof will probably need replacing soon. On the other hand, if a home is 24 years old and has a second roof, that roof is probably only six to eight years old and will last for many more years.

Slate Roof

Slate roofs are considered to be deluxe roofs, usually good for the life of the home. There are many different grades of slate. Good Vermont slate, for example, can last 50 to 75 years without deteriorating, while Bangor slate may start to shale and deteriorate within 40 years.

- ✓ Check a slate roof carefully for signs of scaling or brown stains, which indicate deterioration. The roof may need frequent maintenance and replacement within a few years.
- ✓ If the home has a slate roof, ask the seller to replace missing slates and to tar the ridge before you buy the home.

Wood Shake and Cedar Shingle Roof

Wood shake and shingle roofs have experienced a revival in recent years. They cost about a third of the price of slate.

- ✓ Check to see if the roof is low-pitched because machine-cut cedar shingles will probably rot in about 12 years. However, heavy butt-edge shakes on a steep-pitch roof will last 15 to 20 years.

Fire Retardant Treated (FRT) Plywood Roof

Townhomes without a parapet wall separating individual units may have fire retardant treated (FRT) plywood roof sheathing. The chemical in the plywood disintegrates when subjected to high temperatures causing the wood to delaminate.

- ✓ Check to see if the home has FRT plywood because it will need to be replaced. The age of the roof and the brand will help you determine the type of plywood used. Ask a professional to verify if FRT plywood is present.

Flat Metal Roof

Flat metal roofs require regular maintenance. Terne metal or tin roofs are frequently found on inner city homes and, if painted regularly, can last the life of the home. It's difficult to determine the condition of a metal roof that has been coated with tar many times.

- ✓ Check to see if the roof has been spot tarred in several places and look for signs of past leaks in the top floor ceilings or the attic space. If so, the roof is badly deteriorated and at least partially rusted through. A metal roof must be replaced if it has rusted through because it cannot be patched.
- ✓ Check a flat roof for bare spots, bubbles or signs of sponginess all of which indicate deterioration. If the roof has standing water several hours after a rain, it will deteriorate almost twice as fast as a roof with proper drainage.

Selvage or Asphalt Roll Roof

Selvage or asphalt roll roofing is inexpensive and typically lasts eight to 10 years.

- ✓ Check to see if the home has a selvage or asphalt roll roof. If it does, make sure it's properly installed because it's considered to be low-quality material.

Step 3: The Final Analysis



Once you've completed your consumer home inspection, analyze your findings to identify the positive and negative features of the home. Then decide how to fit them into your analysis. Pay special attention to the quality of the home's construction, the level of maintenance, the quality of individual parts, replacement cycles and any remodeling or other improvements that have been made.

Consider whether a home is especially well-built and decide which factors are most important to you. If a home has been well-maintained, it can command a price much higher than the same home with fair to poor maintenance. On the other hand, homes with poor maintenance can be bought at favorable prices.

The quality of individual parts of a home is also important and may not be what you expect. For example, a big, old home with modest construction features might have a high-quality remodeled kitchen or a home with original casement windows may have upgraded to new, insulated glass replacement windows.

A sound home will last indefinitely, but its integral parts will need replacing on fairly regular cycles. You should know the replacement cycles for these parts and be able to recognize where they are in their estimated life cycle. Hot water heaters, for example, normally last about eight to 12 years. If you're looking at a 10-year-old home with the original hot water heater, the unit probably will need to be replaced soon. For a list of replacement cycles, turn to the *Schedule of Normal Life* exhibit in this handbook.

It's important for you to be aware of any remodeling or improvements because the value they add to a home can be significant. In your final analysis, be sure to consider to take note of any additions, an enclosed porch, a finished basement, added bathrooms or a remodeled kitchen.

Costs of Remodeling, Renovation and Repair

As a prospective homebuyer, it's difficult to be an expert in construction and maintenance costs but a working knowledge of these areas can be valuable. You will most likely need information in the following areas

- ✓ Cost of planned remodeling and renovation
- ✓ Maintenance costs
- ✓ Value of remodeling and renovation work already done

✓ Cost comparisons of various materials

For a list of sample costs of remodeling and repairs, refer to the *Schedule of Estimated Remodeling and Repair Costs* exhibit in this handbook.

Value of Work Already Completed

When you inspect a home, your ability to detect and price previous remodeling can be valuable. If a home in a standard subdivision has been substantially remodeled, you should determine the approximate cost of the work and, the increased value of the property compared to other homes in the subdivision.

For example, suppose a home had a 300-square-foot addition built within the past five years. If you take the rule-of-thumb cost for additions of \$100 per square foot, that addition may translate into a \$30,000 improvement to the property. If the home is priced at \$15,000 more than similar homes in the subdivision, you would be getting as much as \$15,000 additional value by buying the home with the addition.

Consult with a real estate professional to determine whether the home has been over-improved for its neighborhood. If so, it may affect resale of the home.

Cost Comparison of Materials

When you compare one home to another, it's easier to tell the relative value if you know the cost of materials. Keep in mind the following relationships when comparing material costs

- ✓ A slate roof costs about five to six times as much as an asphalt shingle roof.
- ✓ The cost of masonry or brick facing is about three times as much as the cost of wood, vinyl or aluminum.
- ✓ The cost of hardwood flooring is about twice that of carpeting laid over plywood.
- ✓ An insulated glass window costs about twice as much as a window with single glass.
- ✓ The cost per square foot for plaster walls is about two or three times as much as the cost of drywall.

Estimating Maintenance Costs

If a home has been neglected, it's helpful to know the maintenance costs, such as repainting, installing gutters and downspouts, sanding and finishing floors, window repair and minor carpentry. If you can estimate how much it will cost to restore the home to prime condition, you can better judge whether the home is priced properly.

As the homeowner, you will be paying for maintenance. You can estimate the maintenance expenses and replacement costs for a property by using the *Maintenance and Replacement Costs Estimator*.

Section II: Glossary

Glossary of Home Inspection Terms



AMPERE (AMP): A unit measure of electricity.

APERTURE: The opening in pipes.

ASBESTOS: A naturally occurring mineral fiber sometimes found in older homes. It is hazardous to health when a possibility exists of exposure to inhalable fibers. Homeowners should be alert for friable asbestos and always seek professional advice in dealing with it.

AWNING WINDOWS: A window with hinges at the top allowing it to open out and up.

BASEBOARD: Usually wood or vinyl installed around the perimeter of a room to cover the space where the wall and floor meet.

BASEBOARD HEAT: A heating system with the heating unit located along the perimeter of the wall where the baseboard would be. It can be either an electric or hot water system.

BREAKER BOX: A metal box that contains circuit breakers or fuses that control the electrical current in the home.

BUILDING CODE: Minimum local or state regulations established to protect public health and safety. They apply to building design, construction, rehabilitation, repair, materials, occupancy and use.

BUCKLING: The bending of a building material as a result of wear and tear or contact with a substance such as water.

CASEMENT WINDOWS: A side-hinged window that opens on hinges secured to the side of the window frame.

CAULKING: Material used to fill joints that may exist between floors and fixtures; around windows and doors, shower stalls and bathtubs, etc.

CIRCUIT BREAKER: The safety valves for electrical systems. It interrupts an electric circuit when an unusual condition arises such as lightning and malfunctioning appliances. Unlike a fuse, it can be reset.

CLASS B DOOR: A fire resistant rating applied by the Underwriters Laboratories Classification for a door having a 1 to 1 1/2-hour rating.

CPVC: Plastic water piping.

CRAWL SPACE: Shallow space between the underside of the first floor of a house and the ground.

CUTOFF VALVES: Valves used to shut water off, generally located under sinks or behind bathtub and shower access panels. They cutoff hot and/or cold water at the source without cutting all water off throughout the house.

DAMPER: An air valve that regulates the flow of air inside the flue of a furnace or fireplace.

DISPOSER: A device that grinds food sufficiently to enter drains for disposal without clogging.

DORMER: A converted attic with windows projecting through a sloping roof.

DOUBLE-HUNG WINDOW: A window with sashes that slide vertically and allow opening from the top and bottom.

DRYWALL: A gypsum board material used for walls or ceilings.

DUCTWORK: A system of distribution channels used to transmit heated or cooled air from a central system (HVAC) throughout a home.

EAVES: The section of the roof that overhangs the walls of a house.

EXHAUST FAN: Extracts air or excess heat from the interior of a home.

FLASHING: Sheet metal used at wall and roof junctions and around chimneys to prevent water entry.

FLUE: An enclosed chamber in a fireplace that directs flames, smoke and other gases to the outside air.

FOOTINGS: Concrete set in the soil (foundation bed) that support the foundation of the house.

FORCED-AIR FURNACE: A unit that transfers heat from fuel and circulates heat throughout the ducts of a house.

FOUNDATION: The part of the structure upon which all other construction is built.

FUSE BOX: A metal box that contains the fuses that regulate electric current in a house.

GROUND-FAULT INTERRUPTER (GFI): A safety device that interrupts surges of electricity in appliances and other electrical components found in a home.

GUTTER/DOWNSPOUT: Channel of various materials including plastic and copper supported at the eaves to direct water away from the foundation of a home through downspouts.

HEARTH: The fireproof surface of a fireplace, usually 18 inches wide.

HEAT EXCHANGER: A device used to transfer heat in a furnace.

HEAT PUMP: A reverse cycle refrigeration unit that both heats and cools.

HOT WATER HEATING SYSTEM: This system heats water to boiling in a water heater, and a circulator pumps it through a system of pipes.

HVAC: Heating, ventilating and air conditioning system.

INSULATION: Material used to resist the loss of heat energy. Materials such as fiber glass, mineral wool, cellulose and foam are placed in the walls, ceilings, basements and crawl spaces. Insulation may be blown or installed in batt sections.

JOISTS: Horizontal timbers, beams or bars supporting a floor.

LATHING: Strips of wood or other material used as a base for the installation of plaster.

LEAD: A material used in pipes and paint of many older homes. We now know that lead is hazardous to health. The local environmental protection agency should be consulted for guidelines on handling, removal and applicable laws.

MASONRY: Construction using materials such as tile, brick, cement, stone or similar materials.

MEMBER: Wood or steel elements that make up the framing and foundation of a structure such as 2 X 4 strips of lumber cut to various lengths.

MORTAR: A bonding material used in the construction of brick or stone structures.

MOULDING: Strips of wood or the material used to cover joints between floors and walls, and walls and ceilings.

PARAPET WALL: A low wall or railing along the edge of a roof, balcony, bridge or terrace constructed for protection, to control water resulting from rain or artificial flooding or to insulate against the sun's rays.

PARQUET FLOORS: A floor that is laid in rectangular or square patterns often made of prefinished wood or wood veneer squares.

POINTING UP: The removal of deteriorated mortar between bricks and replacement with new mortar.

POLYBUTYLENE: Water piping used for interior piping and the main waterline to the street. Problems with this pipe have curtailed its use.

PROFESSIONAL INSPECTION: An inspection performed by a specially trained inspector to provide a comprehensive report on the condition of a house. This report is usually written and is often used in home sale negotiations.

R-VALUE: A measurement of the ability of insulation to slow the transfer of heat or cold. The higher the R-value, the greater the insulation power.

RADIANT HEATING SYSTEM: An electrical heating system that distributes heat through cables installed usually in baseboard panels.

RADON: A colorless, odorless gas that is emitted from soils, rocks and water as a result of radioactive decay in certain areas of the country. Radon is known to cause cancer. Homes should be tested for radon. The local environmental agency should be consulted on its handling, removal and any applicable laws.

RAFTER: The structural member or beam that supports the roof. It spans from the exterior wall to the ridge board of the peak of the roof.

REGISTERS: Help to regulate the flow of air.

RETAINING WALL: A vertical structure used to restrict the movement of soil or water.

SASH: Framework that holds the glass in a window or a door.

SETTLING: The lowering of elevation of a house or pavement due to weight or shrinkage.

SHINGLE: Sheets of waterproof material used to cover the roofs of homes and other surfaces.

SIDING: Finish material such as wood, vinyl and aluminum used on outside walls.

SILL: The lowest piece upon which a window or exterior door rests, usually slanted downward slightly to provide for rain water runoff.

SLAB: A concrete foundation or floor of a home. Houses built on slab usually do not have basements.

SOFFIT: The underside part of a roof that extends beyond the outside walls of a structure.

SOLAR HEAT: Heat created from the gathering of solar energy from the sun. It can be passive or active. A positive system takes advantage of winter sunlight through windows on the south side of a home. An active system heats through the collection of solar energy through solar collectors.

SUMP PUMP: An electric pump, usually installed in the basement to prevent water from entering the basement area. It empties water from a “well or pit” where it is collected and pumps it to the outside of a home.

THERMOSTAT: Helps to control temperatures within the home. Thermostats automatically turn heating or air conditioning on or off as necessary to maintain a desired temperature.

THRESHOLD: A strip of metal, wood, marble or other material placed at the base of a door.

UREA FORMALDEHYDE FOAM INSULATION: A type of foamed-in-place insulation that releases formaldehyde gas. It was banned by the

Consumer Public Safety Commission in 1982 from use in residences and schools. Holding that the risks had not been proven, a Federal Court lifted the ban in 1983. The local consumer and/or environmental protection agency should be consulted for additional information on this type of insulation.

WEATHER-STRIPPING: Made of various materials used to reduce the escape of heat or air conditioning from a home. It is usually installed around windows and doors.

WINDOW WELL: The open subsurface space that provides light through a basement window.

ZONE: A system that allows different temperatures in various parts of a structure.

Bibliography for Glossary

Appraisal Institute, *The Dictionary of Real Estate Appraisal*, Chicago, Illinois The Appraisal Institute, 1993.

Boyce, Byrl N., ed. and comp., *Real Estate Appraisal Terminology, Revised Edition*, Society of Real Estate Appraisers, Ballinger Publishing Company, Cambridge, Massachusetts, 1984.

Friedman, Jack P., Jack C. Harris, J. Bruce Linderman, *Dictionary of Real Estate Terms, 2nd Ed.*, Barron Educational Series, Inc., Hauppauge, New York, 1987.

Home Ownership Partners, *Maintenance and Educational Manual*, Home Ownership Partners, Louisville, Kentucky.

R.S. Means, Inc. *Means Illustrated Construction Dictionary, New Unabr. Ed.*, R.S. Means, Inc., Kingston, Massachusetts, 1991.

Section III: Exhibits

Schedule of Normal Life

Appliances **Life Estimate in Years**

Dishwashers	5 to 12
Disposals	5 to 12
Washers and dryers	8 to 12
Water heaters	8 to 12
Refrigerators	15 to 20
Stoves	15 to 20

Gutters and Downspouts

Galvanized	15 to 20
Copper	Life of home if well-maintained

Heating and Air Conditioning

Warm air furnace	8 to 12
Heat pumps	8 to 12
Air conditioning compressors	8 to 15
Gas chillers	8 to 15
Hot water boilers	30 to 50

Plumbing

Gas hot water heater	8 to 12
Electric hot water heater	10 to 15
Private disposal systems (septic)	15 to 25
Galvanized water pipes	30 to 50

Roofs

Selvage or asphalt roll	12 to 20
Wood shake and shingle	12 to 20
Fiberglass	15 to 20
Asphalt	15 to 20
Asbestos shingle	30 to 50
Slate	40 to 75

Schedule of Estimated Remodeling
and Repairs Costs

Item	Costs
<u>Additions</u>	
Build addition	\$70 to 120 per square foot
Enclose porch	\$5,500 to 15,000
Drywall ceiling over plaster	\$1.50 to 2.00 per square foot
<u>Basement</u>	
Convert basement to legal rental unit	\$30,000 to 50,000
<u>Bathroom</u>	
Remodel bathroom	\$7,000 to 12,000
Add half bathroom	\$3,500 to 5,000
Add full bathroom	\$7,000 to 12,000
<u>Electrical Service</u>	
Increase service to 200 amps	\$700 to 1,200
Run separate electrical lines	\$150 to 300
Install connectors on outlets (of aluminum wired homes)	\$15 to 20 per connection/ \$2,000 to 3,000 (whole house)
<u>Exterior</u>	
Regrade lawn	\$500 to 1,500
New gutters and downspouts	\$2.50 to 3.50 per linear foot
<u>Fireplaces</u>	
Build masonry fireplace	\$3,300 to 4,800
Install prefabricated fireplace	\$1,800 to 2,300
Reline chimney with terra cotta	\$2,000
<u>Floors</u>	
Sand and finish wood floors	\$1.50 to 3.30 per square foot
Install ceramic tile floor	\$11 to 22 per square foot
Install vinyl tile floor	\$2.64 to 5.34 per square foot
Install wall-to-wall carpet	\$3.38 to 6.41 per square foot
<u>Garages</u>	
Build single car garage	\$6,000 to 9,500
Build double car garage	\$8,000 to 12,000

Heating and air conditioning

Replace warm air furnace	\$1,500 to 3,800
Replace electric heat pump	\$2,200 to 3,600
Replace central air conditioning system (electric)	\$1,500 to 3,000
Replace central air conditioning system (gas)	\$2,600 to 3,500
Install humidifier	\$300 to 550
Install electrostatic air cleaner	\$500 to 750
Replace hot water boiler	\$2,500 to 3,500
Install attic ventilation	\$250 to 450

Insulation

Insulate attic/basement	\$.75 to 1.00 per square foot
-------------------------	-------------------------------

Kitchen

Remodel kitchen	\$8,000 and up
-----------------	----------------

Plumbing

Hot water heater (40-gallon capacity)	\$400 to 650
(30-gallon capacity)	\$300 to 550
Install new well	\$3,000 to 5,000
Install new septic system	\$3,000 to 5,000
Install sump pump	\$400 to 500
Install French drain and sump pump	\$2,000 to 3,500

Roofs

Asphalt/fiberglass shingles— Install over existing shingles	\$1 to 1.20 per square foot
Remove existing shingles and install news	\$1.30 to 1.75 per square foot

Windows

Install storm windows	\$60 to 100 each
Replace existing windows	\$250 to 500 each

Maintenance and Replacement Costs Estimator

SECTION I. Property Information

Address: _____
Style: Ranch _____ Split _____ Colonial _____
Square feet: Above grade _____ Below grade (finished) _____ Total _____
Material: Frame (including aluminum siding) _____ Brick _____ Log _____ Other _____

SECTION II. Utility and Maintenance Costs Estimator

A Utility/System	B Gas	C Electric	D Oil	E Other	F Monthly Expense
Heat					
Air					
Hot water					
Lights					
Water					
Miscellaneous expenses					
Gardening					
Estimated monthly utility and maintenance expense					

SECTION III. Replacement Cost Estimator

System	A Gas	B Electric	C Oil	D Replacement Costs	E Life (Years)	F Years Remaining	G Monthly Reserve
Furnaces							
Boilers							
Compressor (AC)							
Hot water heater							
Roof							
Plumbing (galvanized)							
Plumbing (plastic)							
Washers/dryers							
Disposals/ dishwashers							
Gutters							
Heat pumps							
Refrigerator/stove							
Total monthly reserve requirement							

See instructions on next page.

Maintenance and Replacement Costs Estimator Instructions

SECTION I. Property Information

You should record all the information requested. You can find most, if not all, of this information on the property listing.

SECTION II. Utility and Maintenance Costs Estimator

- | | |
|---|---|
| Column A | • Identify the utilities and systems that apply. |
| Columns B, C, D, E | • Identify type of energy used by utilities/systems that apply from column A. |
| | • Get an estimate of monthly costs for each system from present owner or local utility company. |
| | • Enter the monthly estimate in the appropriate column. |
| Column F | • Add up amounts in each row and enter total amount in column F. |
| Estimated Monthly Utility and Maintenance Expense | • Add all amounts in column F and enter the estimated monthly utility and maintenance expense. |

Example:

A	B	C	D	E	F
Utility/System	Gas	Electric	Oil	Other	Monthly Expense
Heat	\$50				\$50
Air		\$30			\$30
Estimated monthly utility and maintenance expense					\$80

SECTION III. Replacement Costs Estimator

- Columns A, B, C • For each system in the home, enter an X for the energy source that applies.
- Column D • Go to the *Schedule of Estimated Remodeling and Replacement Costs* on pages 35-36.
• Enter the replacement costs for each system from the *Schedule of Estimated Remodeling and Repair Costs*.
- Column E • Go to the *Schedule of Normal Life* and enter the estimated life for each system existing in the house. It is best to use the mid- to low-life estimates.
- Column F • To calculate “Years Remaining,” determine the age of the system which the owner or listing can tell you. In our example below, the furnace is 7 years old. We subtracted the age (7 years) from 12 in the “Life (Years)” box in column E and entered 5 in the “Years Remaining” box in column F.
(12 years – 7 years = 5 years)
- Column G • Multiply the figure in column F by 12 months to estimate the remaining months of life. **(5 years x 12 months = 60 months)**
• Divide column D by the number of months of remaining life. Enter the result in column G, “Monthly Reserve.”
(\$1,000/60 months = \$17)
- Total Monthly Reserve Requirement • Total all the amounts entered in column G and enter the total monthly reserve in “Monthly Reserve” box, column G.
(\$17 + \$42 = \$59)

Example:

System	A Gas	B Electric	C Oil	D Replacement Costs	E Life (Years)	F Years Remaining	G Monthly Reserve
Furnaces	X			\$1,000	12	5	\$17
Boilers							
Compressor (AC)		X		\$1,500	8	3	\$42
Total monthly reserve requirement							\$59

NOTE: We don’t intend to discourage you with the “Total monthly reserve requirement.” We want you to have an estimate of what it may cost to live in the home you select. We recommend that you save this amount so you can avoid “budget shock” when you need to replace a system or appliance in your home.

Consumer Home Inspection Form

See instructions on page 45.

SECTION I. Property Information

Property address _____

Property type _____ **Design** _____

(Single family/2 to 4)

(Colonial, split-level, bi-level, ranch, cape, etc.)

Sales price: _____

Check rooms that apply (Consult listing information)

Number of bedrooms _____ Number of bathrooms _____ Living room _____

Dining room _____ Library _____ Breakfast nook _____

Garage _____ Number of cars _____ Basement _____

Number of basement rooms _____ Finished _____

Number of basement bathrooms _____

COMMENTS: _____

SECTION II. The Consumer Inspection Checklist

A Area		B Location	C Problems/comments
INTERIOR			
BASEMENT			
Floor			
Walls			
Ceiling			
Closets			
Doors/windows			
Insulation			
Type			
Other			
SYSTEMS	Age	Type	
Plumbing			
Heating			
Air conditioning			
Fireplace			
KITCHEN			
Dishwasher			
Refrigerator			
Stove			
Disposal			
Faucets/water pressure			
Counters			
Cabinets/closets			
Walls/ceiling			

A Area	B Location	C Problems/comments
(Kitchen continued)		
Windows		
Other		
BATHROOMS		
Bathtubs		
Showers		
Enclosure (shower/bath)		
Faucets/water pressure		
Cabinets		
Vanity		
Mirrors		
Windows		
Other		
ROOMS (includes all other rooms)		
Floors		

A Area	B Location	C Problems/comments
(Rooms continued)		
Walls/ceilings		
Windows		
Closets		
Other		
ATTIC		
Insulation		
Water damage		
Windows		
Rafters		
Other		
EXTERIOR		
Roof		
Gutter/downspouts		

A Area	B Location	C Problems/comments
(Exterior continued)		
Drainage		
Porches/decks		
Exterior finish (Paint, siding, etc.)		
Windows		
Doors		
Hard surfaces (concrete, brick, etc.)		
Other		
GARAGE		
Interior		
Exterior		
Roof		
Driveway		
Other		
LAWN/GARDEN		
Patio		
Flower beds		
Ground covering		
Trees and shrubs		
Auxiliary buildings		

Instructions for Consumer Home Inspection Form

We designed this form to help you conduct the consumer home inspection. Use it to estimate utility, maintenance and replacement expenses. It helps you focus on the problems and deficiencies that may exist. You do not have to record the condition of an area or system in the home that **DOES NOT** have a problem.

SECTION I. Property Information

You should record the information requested. You can find most, if not all of this information on the property listing.

SECTION II. The Consumer Home Inspection Checklist

Column A, Area: List all the major areas of the home. Record all the information requested.

Column B, Location: If you observe a deficiency or problem in any area listed in column A, record the specific location of the problem here.

Column C, Problem/comments: Record notes about the problem here.

Example:

A Area	B Location	C Problems/comments
ROOMS (includes all other rooms)		
Floors	Bedroom #1	Stains in carpet under window
	Foyer	Tile cracked at front door
	Living room	Hardwood floors need refinishing

This booklet was produced by Freddie Mac, a shareholder-owned corporation that is dedicated to improving the quality of life by making the American dream of decent, accessible housing a reality. We accomplish this mission by purchasing home mortgages from lenders, packaging them, selling them to investors and ultimately providing homeowners and renters with lower housing costs and better access to home financing. Over the years, Freddie Mac has financed one out of every six American homes.

