

Buying an Old House

by Sara Pitzer

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Introduction

I grew up in old houses. My family bought them, moved in, fixed them up, sold them, and moved on, at the rate of about one house per year, for so long that a friend once asked me if we moved a lot to avoid bill collectors.

All the moving did keep away bill collectors, not because they couldn't find us, but because each move turned a modest profit. My parents knew how to make money on old houses.

Having grown up that way, it never occurred to me not to do the same. My husband and I quickly suffered our share of broken furnaces and leaky plumbing in fairly new tract homes. I figured an old house couldn't be any more trouble. When I found one, a 150-year-old brick farmhouse, we didn't investigate much beyond asking the real estate agent where the water supply was. She said she thought there was a spring "up on the mountain someplace." We nodded, flushed the toilet once, slammed the furnace door a couple of times, and bought the place. We lived there 10 years without major problems. As the kids say, "we lucked out."

Several of our friends, inspired by our example, also bought older homes, only to be plagued to the point of moving by one expensive disaster after another. In a sense, those friends got what we deserved. All of us had failed to do at all what my parents always did so well — look beyond the romance and whimsy of an old house to determine, realistically, what was likely to go wrong and what it would take to make the house livable.

Now, several houses and many consultations with other old-house owners later, we've got a pretty good system for evaluating the houses we buy so that they don't haunt us with unexpected problems. What I like about our approach is that anyone can use it. You don't have to know a joint from a joist; you don't need any builder's lingo. All you have to do is think through the way you will use the house and then look it over to see how well it meets your needs *as it is*, and how much it will have to be changed to measure up to what you want.

The two key factors here are being honest with yourself about what you want (don't tell yourself you'll rough it for a couple of years if you're the kind of people who like everything just so) and being accurate in seeing how the house really is. You're on your own with the first, but the considerations outlined in this bulletin, along with the checklists at the end of each section, should help you evaluate an old house objectively and accurately.

You Can Be Your Own Expert

To evaluate an old house properly, you should make at least three visits. The first visit is just to see how you like the general feel of the place. This is the time to enjoy the romance of the winding back stairs, the quaint old claw foot bathtub, and the intricate wood moldings. On your next two visits you must find out whether or not the back stairs are strong enough to handle your traffic, whether the tub drains properly, and how much cold air comes in at the moldings around windows. You should try during and after the second and third visits to calculate as closely as possible the cost of fixing the things likely to go wrong with the house and the cost of making the house acceptable to you. *Your final decision about buying the house should be based not on your ability to afford it as it stands, but on whether or not you can afford to keep up with it and do what's necessary to make it livable.*

Individuals differ in what they consider “livable.” Our old farmhouse had only one bathroom, no front door, and no accommodations for spot heating. We got along fine with one bathroom, and we relegated a front door to “someday” status, but we valued the comfort of spot heating so much that the first thing we did was have a chimney built so we could install a Franklin stove. Another family who had considered the same house rejected it because it had no front door; the people who later bought it from us had a second bathroom put in immediately and actually removed one of our extra potbellied stoves.

Because it's your idea of what will be livable that counts, not the ideas of your friends and relatives, you'll find it works better not to treat your house evaluating visits as outings. The extra people will distract your attention and confuse you with conflicting opinions. The only time to take others with you before you've made your decision is when you think you may have spotted potential problems, and you want an expert's opinion. And although we all revere expert opinion, you don't need as much of it as you might suppose. You can learn to tell if a foundation is sound, the plumbing works, or the kitchen needs remodeling. Look for an expert opinion when you've decided you really want a particular house but aren't sure about some feature.



Rotting clapboard siding is easy to detect

When Expert Opinions Help

Suppose, for instance, that you're considering a house with a roof you know leaks and needs repair but you don't know anything about roofing. An expert can look it over and tell you whether the roof must be replaced or just repaired, and estimate the cost of either. If the figures fit your budget, you

may buy the house, otherwise you probably will pass it up and spare yourself the shock of a roofing bill you can't pay.

Get an expert if you're planning any major structural changes in the house. Some changes are structurally inadvisable. For example, we'd always intended to put a front door in our house; but when we checked, we learned that it couldn't go where we had planned because it would weaken the outer wall too much for the height of the house, unless we got into expensive reinforcing.

The one time you always should get expert help is in evaluating the electrical wiring in an old house, unless you are a qualified electrician. Old houses have notoriously inadequate wiring. Sometimes the existing work can be augmented, but often you need all new wiring. Sometimes wiring that looks okay to the inexperienced eye turns out to be loaded with shock and fire hazards because of short-cuts and mistakes of do-it-yourself electrical work.

While doing it yourself isn't a good idea for electrical jobs, you'll probably evaluate an old house with an eye to how much of the work you *can* do yourself. The only caution here is to estimate what you can manage conservatively, not only in terms of your skill, but also your time. Our language carries us away. We talk about "knocking out a wall here" and "throwing up a partition there" and "splashing a little paint in the hallway" in the same easy manner we talk about picking up a suit from the dry cleaners. In fact, knocking out a wall could take all summer; throwing up a partition usually requires at least two people; and splashing a little paint in a hallway with high ceilings demands the nerve and balance of a high-wire performer.



One doesn't need to be an expert builder to see that the asphalt shingle roof is completely beyond repair. A careful buyer will also guess there is a good possibility of water damage to the frame below and water damage to the wood along the clogged gutters.

How to Conduct an Evaluation

It is easiest to evaluate a house carefully if it is empty, as older houses often are. No furniture covers defects and no residents object to your looking in cupboards. If the house is still occupied and you're working with a real estate person, he or she can arrange for the occupant to be away while you look. In a private sale, getting the owner out of the way may be impossible, and you may feel embarrassed about seeming to pry. Get over that fast. It's your money — lots of it — at stake. People trying to sell a house expect some inconvenience. Soothe your nerves with the thought that you're not bringing unnecessary lookers to harass the owner, and haul out your evaluating tools and set to work in a businesslike manner.

Tools for Evaluating

The tools you should take along are:

- tape measure
- flashlight
- mirror
- ice pick or penknife (for testing wood and mortar)
- binoculars (for checking the roof and chimney)
- small magnet (for diagnosing the plumbing)
- pencil, notebook, and the checklists in this bulletin.

What to Look For

You will divide your evaluation into three general categories: *structure*, *function*, and *comfort*. Obviously these categories overlap. Some items fit into more than one category. The way a furnace operates is definitely part of the comfort you will feel in the house; it's also an aspect of how the house functions. Don't worry about the overlaps. The purpose of such artificial categories is simply to find a way of sorting through all you have to think about to keep you from missing anything and to help you consider one thing at a time.

This approach to evaluating a house makes you run back and forth in the house more than if you simply made a top-to-bottom, attic-to-basement study. That's deliberate. The more you move around in a house, the more details you'll pick up that tell you how it would feel to live there. One couple decided against a lovely, historic four-story house after this kind of evaluation because they decided they didn't want to get into the extra stair climbing a fourth story added.



Wavy lines along rows of bricks indicate the foundation has sunk. Also, the clapboard siding is rotting along the foundation.



The pattern of cracks in the bricks shows this corner of the house has sunk.

Structure

We start our tour of an old house outdoors and work our way in.

Exterior

When you go back to the house to take a second look, you'll be surprised at how little you noticed about the exterior the first time. We tend to notice color, composition, and very dramatic deterioration, but not much else. Now look more closely.

Frame or clapboard siding may need paint. It may be rotted in spots and need patching or replacing. Poke suspicious-looking spots with your penknife or ice pick to see how far any damage goes. Many water-filled bubbles in the paint could indicate an inadequate vapor barrier, meaning that moisture from inside the house is deteriorating its exterior. Extensive soft areas in the wood suggest all the siding should be replaced soon.

Aluminum siding holds up well and usually doesn't need anything, but try to find a spot to shine your flashlight behind it to see the condition of the structure over which it was applied. Sometimes moisture accumulates behind the siding on an old house and can rot the house frame.



Note the serious deterioration of the siding where it joins the foundation. This siding needs to be replaced.

Brick or stone may last forever, but the mortar which holds them together gets soft and crumbly and needs replacing. Poke the mortar with your knife to see if it is soft. If large sections are missing, the exterior will soon have to be remortared.

Stucco may bulge and pull away from its lath underpinning. Small bulges and cracks can be repaired easily. A large bulge, involving most of the side of a house, may indicate a shifting foundation.

Tar paper siding on the exterior of a house suggests a house that was built as inexpensively as possible. Proceed carefully. The heavier the siding, the better the quality. Check to see if the siding still has good surface texture and retains some flexibility. Worn pieces of siding are easy to replace, but there is always danger that water has seeped into the worn spots and damaged the underlying frame.

While you're looking over the exterior of the house, check the condition of the window frames on the outside. Sometimes this wood is soft or rotting even though the siding around it is still solid. Suc

frames will need to be replaced with new wood to keep the windows tight and to prevent water from seeping in and damaging the structure.



The roofline both sags and bows, probably a sign of foundation problems.



This foundation has shifted, been repaired, and now needs mortar and more repair.



The foundation here is still essentially solid, but the mortar has worn away and will need to be replaced eventually.

Foundation

Is the foundation solid and stable? Does it need work?

~~The first thing to do in checking the foundation is to look at the roof. That's not a mistake. A sagging roof ridge *may* indicate that the entire foundation has shifted and settled unevenly, twisting the frame of the house as it moved. Other clues to serious foundation problems are windows and bricks sloping down toward corners, wide foundation cracks, and bulges in the outside walls of the house. *If you find all these symptoms of foundation trouble, get the advice of a builder before you make up your mind about the house.*~~

Most foundations are stone, brick, cement block, or poured concrete. Small cracks in these, either on the inside or outside, are to be expected and are nothing to worry about, though you may want to repair them eventually. Some old farm buildings are built on wood or masonry posts or on wood sills that lie right on the ground. You should expect to have to replace such foundations with something like cement blocks if you want the house to stand up to much use. Except when a house rests on a wooden foundation, any wood should join the foundation at least six inches above the level of the ground.

While you are looking at the foundation, poke into whatever wood you find with your penknife for soft spots and look for any little mud tunnels running from the ground to the wood. These are a sign that the house has or has had termites. Termites should be exterminated; but they should not panic you or cause you to reject the house, unless you can find evidence that they've chewed up large parts of supporting beams.

Dig your knife into the masonry parts of the foundation, too. If you find a few soft, crumbly spots, don't worry because they can be repaired; but if the entire foundation seems soft and crumbly, get an estimate on the cost of replacing or reinforcing it before you agree to buy the house.



The wood of this house lies too close to the ground. There are also signs of a deteriorating foundation.

Beams and Supports

Are the beams and supports sound, straight, and adequate?

If the house has a basement, check any exposed wood for soft spots from termites or dry rot. If you find only small shallow spots, the wood is still basically sound. Check girders to see if they sag. Sometimes in old houses, builders left too much space between upright supports, and sagging girders have to be reinforced with additional posts or jacks. Usually such reinforcement is not difficult, but be sure your financial calculations allow for this as an almost immediate expense if you buy the house.



The crawl space shows that the foundation is essentially solid, but needs new mortar. The PVC pipes reveal some new plumbing work.

Basement

While you're checking the foundation and the exposed beams and supports, look over the entire basement area for signs of water problems. If the walls bulge inward in spots, this can be a sign of pressure from water in the soil outside the house. Usually, but not always, this situation can be improved by regrading the area around the house. Other signs of water in the basement are obvious moisture, high water marks, a sump pump, and a basement floor on which nothing is stored. Probably you wouldn't reject a house just because of water in the basement. In some areas, all the basements flood with the spring thaw, and water running down the gutters from every sump pump in the neighborhood is as much a part of the season as robins. But you do need to be sure such things as the furnace, water heater, and fuel supply are safely away from water. Also, you need to reassure yourself that water is not pouring through cracks in the foundation fast enough to deteriorate that foundation. If the water problem looks excessive to you, call in a mason or builder for an opinion.

Some old homes have unfinished basements with masonry walls and earth floors. If having the basement finished with a concrete floor and plastered walls is important to you, be sure to calculate its cost.



Notice the lip in the corner and at the doorways of the floor, indicating the floor has been sanded and probably can't be sanded down much more.

Walls, Ceilings, and Floors

Nearly everyone has heard somewhere that you should jump up and down on the floor to see if it

bounces and rattles in the windows, and then roll a ball across it to see if it's level. You can if you want to, but you've probably already established the sturdiness of the house frame in the basement, and the fact is, most old houses have lopsided floors. Obviously, severe springiness and lopsidedness so bad your ball goes down like you were shooting baskets tell you there's a problem. Otherwise, consult a carpenter or structural engineer only if you plan to move in an excessively heavy piece of furniture, such as a water bed or a grand piano.

In an essentially solid house, a more important consideration about the floors is how much attention they'll need to be acceptable. For a time people in many parts of the country put down a piece of carpet or linoleum in the middle of the floor and painted only the exposed wood. How will you want to treat such floors? Too many nail heads often make sanding and refinishing impossible. Also, if you find the floor makes a lip against the molding along the walls, it's a sign the floors have already been sanded down several times, so you won't be able to go much further.

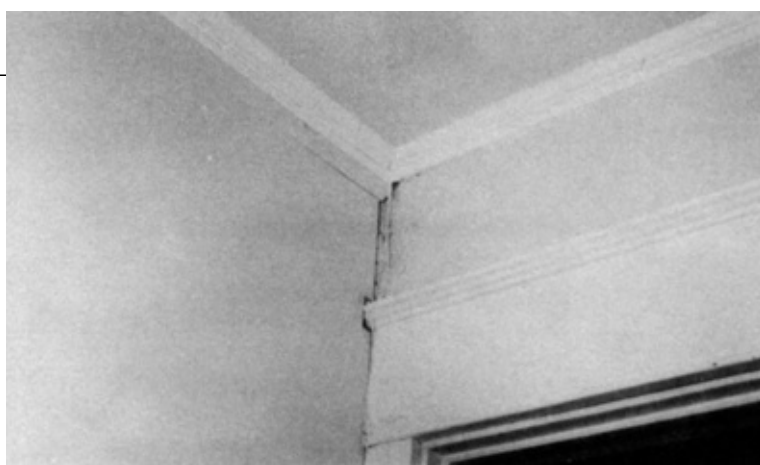
If the floors are covered with linoleum or carpet try to find a place where you can look under it to see what's underneath: good floorboards or just subflooring, and whether it's sound or soft enough to need replacing.

Although the floors may not need much attention, you almost always have to do something to the walls and ceilings of an old house. It doesn't take an expert to tell when a ceiling is in trouble. If you see an obvious sag in the middle, a wide crack across the center, or cracks around old patches, you probably will have to plan on tearing off the old plaster and replacing the ceiling.

The walls probably will have some cracks. If they're just hairline cracks, they don't mean much; but long vertical cracks in corners and wide cracks around windows and doors mean plaster is pulling away from the lath behind it. If the plaster is old and crumbling, you won't be able to patch it or wallpaper over it. Instead, you will have to put up wallboard or paneling. However, if the plastic seems solid, you'll be able to patch and repair.

Window Frames

Are the window frames tight? While you're checking for cracks around windows, test to see how the windows are set into their frames. Classical evaluation calls for opening and closing the windows to see if they bind (which can indicate a shifting foundation and twisted house frame); but in old houses, the windows often are painted or nailed shut. If you find wads of caulking that look old or have been painted over, the windows probably are very loose. When we scraped the putty out of our window frames, we uncovered miles of nylon stockings stuffed into all the cracks. And when we pulled out the stockings, the windows rattled in every breeze. If you see signs of such makeshift arrangements, you'll have to decide if you can live with them or will want to pay for improving them. We comprised by keeping the windows open most of the summer and caulking them up with flexible strips every winter.



Here the plaster walls are separating in the corner as the plaster shrinks and pulls away from the lat

Attic

If the house has a full attic, inspection is easy. If it has only a crawl space, you may not be able to do much more than hoist your head and shoulders up through the trap door. Either way, look for vent or grill work to let interior moisture escape. Usually you'll find them either in the eaves or near the ridge of the roof. Check also to be sure any vent pipes from bathrooms go through to the outside and don't just stop in the attic area.

Check exposed rafters for signs of rot and for water marks, which indicate a leaky roof. Look up to see if daylight shows through any holes in the roof. With wood shingles this is natural because the wood is supposed to swell enough when it rains to keep the roof from leaking, but if you're looking at slate or tin or asphalt shingle roofing and can see light, the roof probably leaks. Water marks on the floor will corroborate this, but don't expect to find them directly under what you think are holes because the water will run down the supports to the floor, not drop straight down.

Also look for droppings, shredded paper, nests, hives, and other signs of mice, rats, bats, and bees. Bats in the attic may make good Halloween jokes, but they can make an old house almost uninhabitable if they've been there long enough to multiply.

After you've done all this, look around for anything unusual which could mean problems, money, work, or — sometimes — a nice surprise. We found out that our farmhouse had a walk-in fireplace covered over by cupboards after a cat got into the attic and fell down the cut-off chimney which had once served that fireplace.

Finally, in the attic, if you are looking at a house with a flat roof, locate the trap door that opens onto the roof. This will give you a chance to get your head and shoulders through the door far enough to see what condition the roof is in.



This picture shows worn roofing and flashing.

Roof

What's the roof made of? What condition is it in?

If you can't get onto the roof, use your binoculars for this part of the evaluation. It will help if you can find out from the owner about how old the roof is.

An asphalt tile roof usually lasts about 20 years. The tiles should lie flat, be unbroken, and have a bumpy surface. As asphalt tile wears out, the surface gets smooth and the backing shows through. When more than a few tiles look smooth and broken, you know the roof will have to be replaced soon.

A good slate roof will last almost forever, but will need repair and replacement of bad shingles occasionally. If the slates look cracked, split, or chipped along the edges, expect to have to repair the roof in about five years.

Wood shingles can last as long as 35 years. When they turn soft and begin to break away, you have to replace the roof.

A tin roof can last up to 50 years if it has been cared for well. Check for the absence of heavy rust. The surface should be unpitted, and seams where strips join should be tight. Bad spots in a tin roof are easily patched if most of the metal is in good shape.

The pieces of metal that seal seams around chimneys, vent pipes, and dormers are called flashing. If the flashing is loose, water can leak in at those seams. Sometimes tar paper will be substituted for metal, but it is not satisfactory. Repairing or replacing flashing is not overly expensive, but if a roof has been leaking there for long, water may have damaged the underlying structure. Another look from inside the attic is in order if you spot faulty flashing.

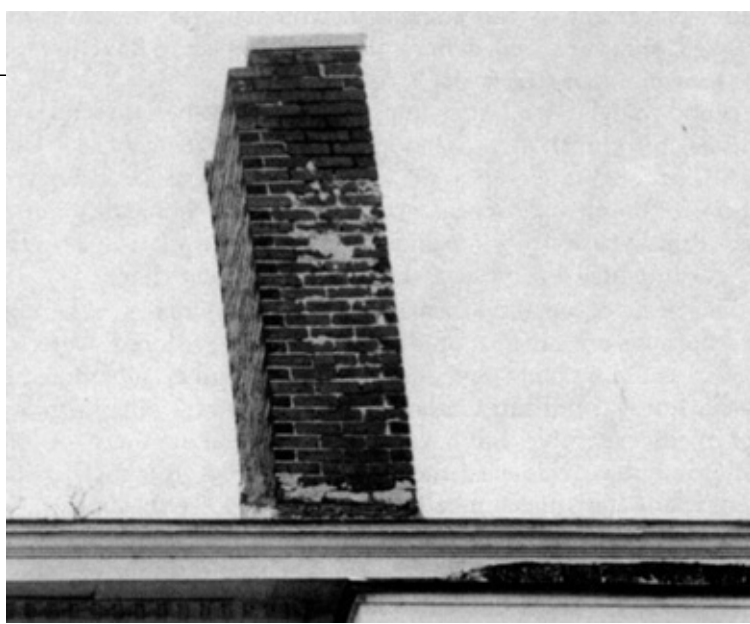
After you've examined the composition and condition of the roofing, take a long look at the general shape of the roof. You've already looked at the ridge once when you were trying to see if the foundation had shifted. If you saw any signs of sagging or bowing, look inside the attic again to see if any rafters are warped or if the long ridge beams need additional upright support.

Also, while you're looking at the roof, note the condition of gutters and downspouts. If they're rusty, clogged, broken, or missing, try to find the places where water is hitting the house to see how much damage the water has done. If you find any damage, add this information to your notes under "Exterior."

Chimneys

Are the chimneys high enough? Are they sound?

Each chimney should be at least as high as the highest part of the roof to draw properly. And the mortar between the bricks or stones of each chimney should be firm, not soft and crumbling. Good chimneys are lined with a terra-cotta flue liner, which is easy to see if you can look down into the chimney from the roof. Most old chimneys will not be lined. A less strenuous way of checking the liner is by opening the damper at the fireplace and examining the inside of the chimney with a flashlight and, if needed, a mirror. To check the lines of chimneys to stoves and furnaces, look for the clean-out box and use your light and mirror there.



Here is a chimney with mortar gone from between many of the bricks. It needs repair.

Sometimes a chimney will pull away from the side of the house against which it was built; you're most apt to find signs of separation near the roof. Good construction demands that the chimney be braced against the house with metal straps, especially if the chimney is very tall. And although old-timers sometimes vented more than one stove into the same flue, every stove and fireplace should have its own flue if there's any chance they'll be used at the same time. It's fine for more than one flue to be covered by the same chimney.

If you plan to heat with wood, plan to reline the chimney with a stainless steel liner. You can probably do the installation yourself, but get an estimate for the cost of the liner.

Chimneys on old houses often are in poor condition. Replacing or repairing them can be expensive, but you must count it as an immediate, necessary expense, especially in cold areas where every winter firefighters lose battles against fires that started in inadequate chimneys.

CHECKLIST FOR STRUCTURE

**Good Needs Work
 Soon Needs Work
 Now Estimated
 Cost**

Exterior _____
Foundation _____
Visible beams and
 supports, basement _____
Visible beams and
 supports, attic _____
Walls _____
Ceilings _____
Floors _____
Window frames,
 outside _____
Window frames,
 inside _____
Roof _____
Chimneys _____
Basement, general condition _____
Attic, general condition _____
House is pest free _____

Total estimated costs for structure for work needed soon _____
Total estimated costs for structure for work needed now _____

Function

No matter how attractive and structurally sound your old house is, if it doesn't work right you'll end up hating it. You can't assume that because it satisfied its previous occupants it will work for you. If you're moving a family of four into a house inhabited for many years by a widow, for instance, you may find that the furnace heated only as many rooms as she cared to use, but it can't serve all the rooms you need, or that the heater, which produced enough hot water for her, runs out and leaves the last two bathers in your family in cold showers every morning. Even the septic tank fills up faster.

In evaluating each function of the house, concentrate not on how it served its previous owners, but on whether it can meet your demands.

Floor Plan

In an old house, the floor plan may differ considerably from what you're used to in a modern house or apartment, especially if earlier owners have added rooms and built partitions. The traditional rule says that you should not have to go through any room in the house to get to any other room. In actuality, this may not matter. For instance, many old houses have two upstairs rooms connected by a doorway, with only the front room opening into a hall. You have to go through this front room to get to the one behind it. If both rooms are to be used as bedrooms, this could be a problem; but if the front room is to be a study or den or sewing room, going through it would be only a minor inconvenience. What's important is that you be aware of such things and decide, ahead of time, whether or not they bother you.

How the house is oriented and where the windows are located may make a difference to you. South-facing windows allow a great deal of light and heat. That extra solar energy is a bonus in northern climates. Windows on the north side of the house lose heat. Will this be a problem? Is there an open floor plan in the living areas to allow heat from a wood-burning or coal-burning stove to circulate? Or if you don't plan to have any space heaters, does the floor plan allow for a good circulation of air?

Other things to check in the floor plan include a bathroom (or place for one) close to bedrooms, proximity of an eating area to the kitchen, and an entry area so that you don't have to walk directly into the house in muddy boots.

If you expect to make changes in the location of rooms and hallways, check with a carpenter to be sure the changes are practical.

Plumbing

The rooms that most commonly need to be changed in an old house are the kitchen, bathrooms, and laundry room. This leads you immediately to the plumbing.

In an old house you're most apt to find the silvery gray of galvanized iron. This is the least desirable pipe because after about 30 years it rusts and clogs with mineral deposit, which means it will leak and get stopped up. Put your little magnet against any exposed pipes. If it sticks, your worst fears are confirmed; the pipes are galvanized iron. Depending on how long they've been there, you may have to work on the plumbing.

On the other hand, if the magnet doesn't stick and the pipes are the color of a tarnished penny, you're in luck because the pipes are copper. This indicates a newer system and one that doesn't rust or accumulate mineral deposits inside as badly as galvanized steel.

If the plumbing has had recent attention, you may find pipes that look like plastic. These are called PVC, which is used in all kinds of modern plumbing. It's tough, easily replaceable, doesn't rust or

hold mineral deposits. Plumbing that's mostly PVC is probably in good shape.

Occasionally, you will find lead pipes in older houses. These must be replaced immediately because they constitute a health hazard.

To test the water pressure, turn on all the faucets at once. If the pressure is poor, the water will slow to a trickle. Whether poor water pressure is a major problem or just a nuisance depends on what's causing it and on what appliances you use. If the pipes are gradually filling shut with mineral deposits they will have to be replaced sooner or later. If it's simply a matter of a gravity-feed water source, you could live with the problem. In our farmhouse, it was a standing joke that you didn't dare flush the toilet while someone was taking a shower. We adjusted to that, but when it came to using appliances, it got a little more complicated. We had to buy the kind of washing machine that doesn't start to agitate until the water reaches a certain level; in our old washer, a timer controlled the beginning of agitation, but our slow water didn't have time to fill the machine.



PVC pipe indicates new plumbing. The nestlike appearance of the loose insulation suggests rodents live here.

You can find out if the plumbing has any hidden leaks by turning all the faucets off and putting your ear close to an exposed pipe. If it sounds as though water is still running somewhere, there's a leak to track down.

All the water that runs into the house eventually has to go back out again. In a city, the house probably is on a sewer line, and your only concern will be the condition of the pipe that leads into the sewer line. If the toilets flush well two or three times in a row, and water drains briskly from the bathtub, problems are unlikely. In towns and small communities, the house may have a septic tank. Under normal use, a septic tank needs to be pumped about once every three years. If you learn that it has been pumped more often, there may be a drainage problem, especially in an older tank. In some areas a combination of heavy clay and layers of rock affect septic tank drainage of everyone in the neighborhood. Typically, people in that situation all shrug, complain a little, and have their tanks pumped more often. Something like that must have been the origin of Erma Bombeck's observation, "The Grass Is Always Greener Over the Septic Tank." And a woman who lived near us in such an area grew prize-winning zinnias over and around her septic tank. If you find a similar situation you can expect some annoyance, but nothing demanding huge sums of money.

However, sometimes the problem goes beyond the septic tank to involve the drain field, especially in older, rural homes. A drain field is a layer of rock and gravel, buried several feet under the soil, in which the septic tank fluids drain. Often these become clogged and ineffective after 30 years or so and must be replaced. The only way to put in a new drain field is to dig up an area with a back hoe and fill

in with new stones and gravel. This is a major, expensive job.

To protect yourself against such problems, get as much information as you can about the history of a septic tank and its performance. Don't stop with the owner, ask the neighbors. It's hard to keep a faulty septic system secret.

In a very old farmhouse, you may find a cesspool. The only waste disposal arrangement more primitive than a cesspool is an outhouse. A cesspool is basically a big, covered, rock-lined hole into which household wastes are piped. The water gradually seeps out of the hole into the soil around it, with most of the solids eventually becoming liquid enough to run off with the water. But eventually air pockets in the soil clog, exhausting the area, and the only answer is a new cesspool or a septic tank. Increasingly, in populated areas, cesspools are against local laws. If the house you are considering has a cesspool, it's only a matter of time before you have to replace it. In some areas of the country, particularly in New England, the soil drains so poorly that even septic tanks are against local zoning laws. When in doubt, consult the local zoning office. A percolation test will tell you whether a septic tank will be adequate.

Now you've investigated how water comes into the house and how it gets back out. In areas where winter is severe, try to find out how much freezing-and-below temperatures affect that process. Water pipes to an upstairs bathroom in uninsulated exterior walls may freeze every time the temperature approaches zero. People used to deal with this simply by shutting off the water to the upstairs in the winter, but you may not find this much of a solution. The seller may or may not tell you if pipes freeze. You can try to figure it out yourself by looking to see if they are all insulated, possibly wrapped with electrical heat tapes, or located along interior walls in heated parts of the house. If you notice black smudges on the pipes or walls near them, it could be a sign of frozen pipes which were thawed with a propane torch.

Water Heater

What kind of water heater is it? How old is it? What is its capacity? You should be able to answer all three questions just by reading the metal plaque or decal giving manufacturer's information.

A water heater usually will last only 15 years, maximum. If it seems old, expect to have to replace almost as soon as you move in. If four or more people are going to live in the house, you'll need at least a 40 gallon heater if the heater is fueled by gas. The capacity of an electric water heater should be even larger, unless it has a quick-recovery feature. The various arrangements for heating water in boiler or tank related to the furnace are seldom completely satisfactory.

Whatever kind of hot water heater the house has, look under it for signs of leaking. Some heaters have a little door or screw-on cover to let you check inside. Once a heater springs a leak, it almost always has to be replaced. But don't confuse water from the drain-off spigot at the base of the tank with leaks.

Electrical Wiring

Is it safe? Is it adequate?

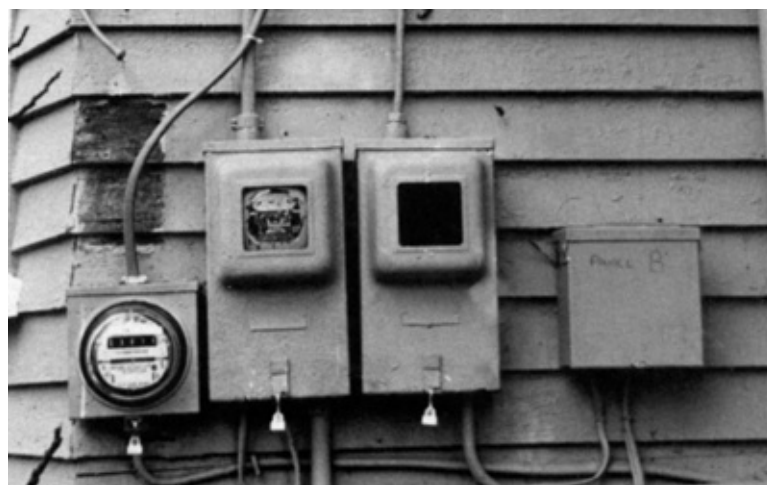
Unless you know enough to be an electrician, this is one place where you need an expert. You can do a preliminary check yourself, if only to have some idea of what to tell the electrician when you call. Begin at the service entrance, the place where the electric supply wires come into the house and where the service panel or fuse box is located. Circuit breakers (switches that resemble ordinary light switches) instead of fuses on the panel indicate a newer installation. Old houses used to be wired for 60 ampere service. This information should be on the door of the service panel. In such an installatio

you will find two wires, providing a total of 120 volts, coming into the house. This is not adequate for operating modern appliances. In a modern house, expect to find three wires: one neutral, and the other two providing 120 volts each, for 100 to 200 ampere service. If this is what you find, you may be lucky. A previous owner may have upgraded the wiring. Sometimes there is new wiring just to the kitchen. If the kitchen has new circuits, you may not have to worry about old wiring.

Clues to old, unsafe, or inadequate wiring include wires wrapped in fabric rather than plastic or metal, frayed or crumbling wires, rooms with no wall outlets, and installations using white ceramic knobs and tubes. Sometimes in an old house, the electrical wires run through conduits which run along the outside of room walls. Although they look a little funny, such systems often are excellent functionally.

When you are looking at exposed wiring and at the service panel, don't touch anything unless the main circuit breaker is off.

If you are serious enough about the house to have an electrician look at it, you should ask him or her to tell you if the wiring is safe and adequate as it is. If it is not, find out if the existing system can be improved or would have to be replaced entirely, and what the estimated cost would be.



Here's an antiquated electrical set-up.

CHECKLIST FOR FUNCTION

	Good	Needs Work Soon	Needs Work Now	Must be Added	Estimated Cost
Estimated Cost	_____	_____	_____	_____	_____
Floor plan	_____	_____	_____	_____	_____
Plumbing	_____	_____	_____	_____	_____
pipes and pumps	_____	_____	_____	_____	_____
Toilets, sinks, tubs, showers	_____	_____	_____	_____	_____
Waste disposal	_____	_____	_____	_____	_____
Water heater	_____	_____	_____	_____	_____
Electrical wiring	_____	_____	_____	_____	_____
Total estimated costs for function for work needed soon	_____				
Total estimated costs for function for work needed now	_____				

Comfort

Most of the comfort of a house seems related to controlling the temperature inside. And once you're in a house, most of your operating budget goes into keeping yourself warm or cool.

Heat

Does the house have central heating? What kind of furnace? What does it burn? What is its size and condition? How is the heat circulated? If there spot heating or could it be added? Do the fireplaces work?

Unfortunately for most of us, looking at a furnace is about like kicking the tires before we buy a used car; we know everybody does it, so we do it too, but we're not quite sure what we're supposed to learn in the process.

When you inspect the heating system, you'll be trying to find out not only how it generates and circulates heat, but how effectively. Assuming the house has central heating, the furnace probably will burn coal, oil, or gas. In the country, you may find houses where the owner burns wood in the furnace. And the heat from these systems will be circulated by air, water, or steam.

The earliest form of central heat was a wood-burning or coal-burning furnace with registers on the first floor through which the heated air rose naturally, usually from pipes over the furnace. The second floor in this arrangement was heated with whatever heat rose through more registers cut in the ceiling of the first floor. I remember a system of this sort vividly from my grandparents' farmhouse. As a kid, I thought it had two great features. You could stand over the big register in the hallway and the rising hot air would balloon a full skirt in a most glamorous way; and you could go upstairs, lie down on the floor, put your ear next to the open register, and hear every word the grownups in the living room were saying. That's what a kid remembers. What grownups remember is that such heating systems created huge amounts of dust and, literally, blew hot or cold. Rooms with registers close to the furnace got very hot. The farther you got from the furnace, the colder the room. And by the time the air went through the downstairs and drifted to the second floor, it wasn't really warm anymore. If you look at a house with this kind of heating system, you will almost certainly want to change it.

Forced hot air is a more recent and much more satisfactory method of circulating heat. It is installed in many modern homes. It differs from gravity hot air in that ducts go to the registers in every room, and the hot air is forced through them with a fan. In newer systems, the air goes through a series of filters before it is circulated, which eliminates much of the dirt and dust once associated with hot air heat. If you find a house with forced hot air heat, check to see if heat ducts open into every room; because sometimes when a system was converted, the owner would pipe heat only into rooms the family used most, leaving other rooms to be heated with whatever warm air found its way there naturally.

Steam heat, still found in a few old houses, involved heating water in a boiler to force the steam through pipes into huge radiators. It's a clunking, noisy way to heat a house, and the radiators are always either red hot or stone cold, but it does work. You could live with steam heat for a while if you had to.

Hot water heat, which may be gravity or pump forced, involves radiators in older systems and baseboard units in newer systems. It is considered an effective way to heat a house.

Although the way the heat circulates is what you're most aware of as you spend time in the living areas of a house, the way that heat is generated will affect how much time you have free to spend in the living area. Older, wood-burning furnaces have to be fed several times a day. Hand-stoked coal

furnaces require feeding at least twice a day and ashes must be removed daily. Newer, automatic stokers relieve you of shoveling in coal, but you still have to take out the ashes.

During the 1950s and 1960s, when fuel oil was cheap, many people converted coal burners to oil, with varying degrees of efficiency. If the house you are considering has such a conversion, check with the oil company who did the work and delivers the oil to find out whether or not it is still economically feasible to heat the house this way. By the end of the 1970s some people were having the oil burners taken back out and returning to coal. Even if the house has a newer and (theoretically, at least) more efficient oil burner, it's a good idea to find out how many gallons it takes to heat the house each year.

When oil was cheap, so was electricity, and in those same years surprising numbers of people in old homes, especially in the country, converted to electric heat. While such a system has little that can break or wear out and allows you the freedom to heat only those rooms you are using, the rising cost of electricity leaves doubt about whether or not you can afford to heat even a few rooms electrically.

At the other extreme, a few old houses have no central or modern heating at all, but rely entirely on fireplaces and wood stoves. Surprisingly, you can keep a house quite comfortable this way, provided someone is home most of the time to tend the fires. Such spot heating is being used (and added) increasingly by people who are finding their central oil-fired, gas, or electric systems too expensive to operate.

What all this adds up to is that there's no telling what kind of heating you'll find in an old house. The best way to check whatever you find is to turn it on high and then listen to the system as it works. Note how long it takes heat to come into each room, and look for cold spots and hot spots. If the system uses water or steam, look for puddles or water marks around the furnace or boiler. If the furnace burns oil, be sure to check the storage tanks to see that condensation from inside has not rusted through to the outside. More than one family has ended up mopping hundreds of dollars worth of fuel oil out of the cellar because an old tank gave way. If you are going to be a regular customer, some oil companies will put in a new tank for you for a nominal fee. Ask to see the current owner's fuel bills.

If the house relies heavily on spot heating, try to judge the condition of each stove and fireplace and all their attendant chimneys. Sooty spots over the fireplace suggest poor draw; black streaks running down a wall where a pipe goes into a chimney are signs that the chimney should be higher or that wet wood has been burned in the stove, creating creosote build-up inside the chimney. Creosote and soot build-up ignite easily and could set a chimney on fire. If you suspect such build-up, figure on some expenses for having the chimneys checked and cleaned. You can get a good idea of the effectiveness of a fireplace flue by opening the damper and lighting a piece of paper in the fireplace. It should go up the chimney with a quick "whoosh." Be suspicious of fireplaces that are so clean they look unused; there may be a reason no one used them. And never count on opening up a closed fireplace until you've consulted a fireplace builder. Closed fireplaces were closed for a reason, and in an old house the reason could be an insolvable problem. When we tried to open up a corner fireplace in one old house, we were disappointed to learn that the chimney, which was an interior chimney running up the inside of the house, was soft and deteriorated and could be neither repaired nor replaced without rebuilding an entire wall. Later we learned from neighbors that the fireplace had been boarded up shortly after the house was built because it never drew properly.

Buying Land in the Country

If you are looking for an old house in the country, you know that the character of the land can be

as important as the house itself. Bulletin A-67, *Buying Country Land*, sets forth some guidelines for evaluating land; you may find it useful.

How much checking you are able to do on the heating system depends on whether the house has been unoccupied for a long time or not. You can't very well turn on a furnace that has no fuel, nor can you test an electric heater if the power is off. Neighbors can be tremendously helpful if you run into such situations; an old house gets a history, especially in neighborhoods where families live for more than one generation.

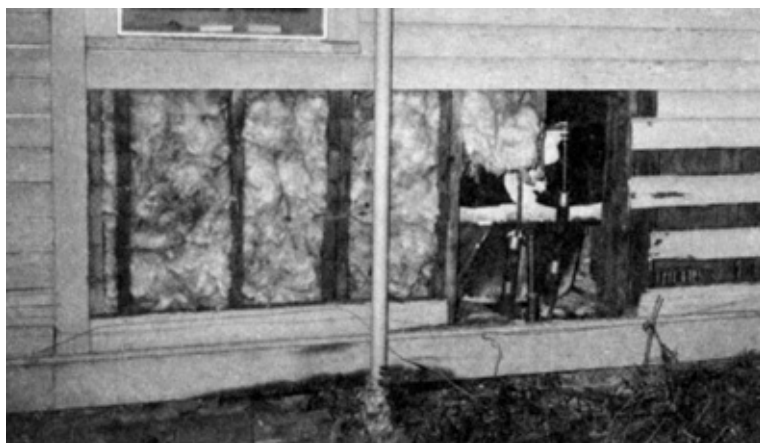
The same neighbors who gave us the history of our nonfunctional fireplace (they learned it from their parents) remembered when the coal furnace had been installed in our house. They told us all about who built the chimney, how often it had been cleaned, and how often the previous owner had "done dumb things," such as burn green pine instead of coal. If we had talked to these people before we bought the house, we might have saved ourselves several surprises.

Air Conditioning

Is there any air conditioning? What condition is it in? Can it be added?

You are unlikely to find air conditioning in an old house unless a previous owner modernized extensively. If something like that has happened, check to see if the house has central air conditioning or window units. Look at the filters, if you can, for a clue to how well they've been maintained, and then turn on the unit, listen to it run, and try to estimate how quickly cool air comes into the house. Air conditioners usually give warning when they are about to die by wheezing and clanking and blowing less and less cool air.

If the house does not have air conditioning, will you need to add it? In Vermont you could live comfortably without it; in Los Angeles, you wouldn't even try. If you decide you would want air conditioning added, be sure to check with your electrician when he or she evaluates your wiring to be sure you'll have enough power.



Buyers usually don't get this close a look at how bathroom plumbing along outside walls is insulated. These pipes would freeze in very cold weather because only exterior boards and a thin layer of insulation protect them. No heat source is near the plumbing.

Insulation

Is there any insulation? How much? Where? What kind? Can more be added?

The efficiency of both heaters and air conditions rises dramatically in a well-insulated house.

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