Ten Tips From a Home Inspector

Whether you're buying, selling or building, here are a few clues to some of the things that can go wrong in a house over time

BY REX CAULDWELL

I know people are not always happy to see me coming. It isn't personal. A home inspector is likely to uncover at least a few flaws, and I know my work can delay or even derail the sale of a house. An inspector's report can change the selling price of a house by thousands of dollars. But inspectors also have improved the quality of houses all over the country and made them a lot safer to live in.

Like most inspectors, I've seen obvious problems that made me shudder: plumbing held together with duct tape, dangerously overloaded fuse boxes, joists and beams weakened by carelessly run pipes or ducts. Such places need major work. Houses without obvious problems may seem to be in better condition, but a thorough inspection still can uncover situations that should be addressed, whether the house is for sale or not.

Not all problems are major. But given time, even small problems can do excessive damage. Caught quickly, they may be easier and less expensive to repair. Folks in the trades can learn something from a complete home inspection: namely, what not to do. After all, many of the problems I uncover could have been avoided if the work had been done more carefully at the start. □

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1. Check the meter-box seal

I once was called to do an inspection of a house where the service-entrance cable ran along the ground for 40 ft. after it came off the pole, then disappeared into the house through an open window. What's more, the owner's dog had been chewing on the cable. That is one of the few inspections that I just walked away from.

Electrical hazards are usually less obvious. In addition to checking for visible problems in the service-entrance cable itself, such as deteriorated sheathing that exposes the stranded neutral, I also look at the meter base carefully. I check to make sure it is securely fastened to the siding and that the rubber seal on top of the base is intact. The seal is supposed to provide a watertight barrier where the service-entrance cable feeds into the meter base. But in time, this seal can fail, allowing water inside and leading to failure of the meter base.

The meter base also provides good clues to the type of electrical panel I should find inside. A small, circular meter base is typically used to feed a 60-amp panel, inadequate by today's standards (photo right). When I find that it supplies a 150-amp or 200-amp service panel, I know that someone has upgraded the system illegally. This upgrade is done to avoid getting a permit, but it creates a safety hazard because the service panel is now pulling more current than the meter base and service-entrance cable were designed to carry.

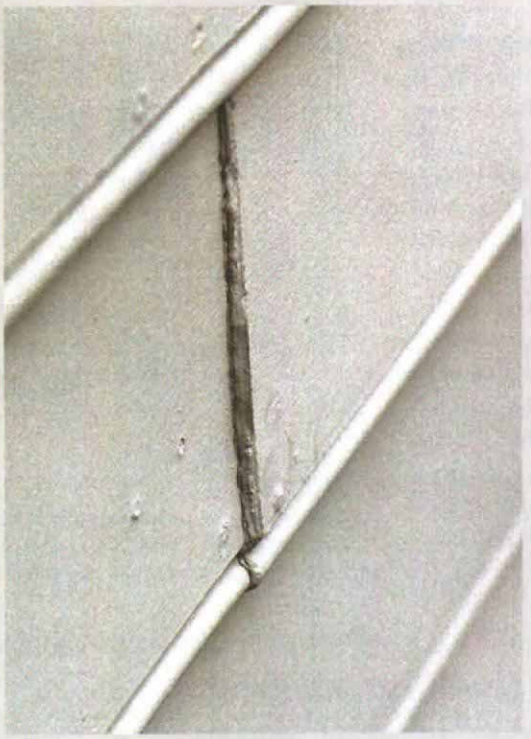


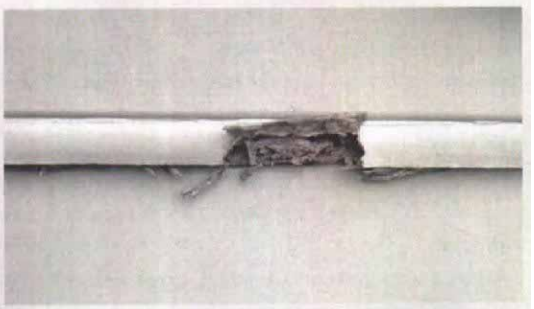
Clues to what lies beneath. Besides its dubious attachment to the wall, small meter bases such as this one are made to handle 60 amps and should not be supplying a 150-amp or 200-amp service panel.

2. Look for a siding coverup

Whether a house's siding has been damaged by ornery woodpeckers, age, insects or bad construction, it's the one thing an owner will try to make look good for a quick sale. A new coat of paint can cover a lot of defects. That's why I carry an awl to probe siding and trim. I check for rot, delamination, peeling paint and cracks. In particular, I check where the siding butts up against the trim or against anything else that protrudes from the wall—a chimney, for example. I'm especially vigilant where siding has been drilled through for plumbing, electrical, phone or other utilities. These areas are where water is most likely to enter, which begins the process of rot.

Water infiltration is especially damaging to hardboard composite siding (top photos) and to houses finished with certain kinds of stucco. Today, a considerable number of stuccoed houses are leaking water into stud walls, rotting the framing members and wall joints. The problem has been especially severe in homes with synthetic-stucco walls: Water gets in, but it can't get out. Most frustrating for the inspector is that stuccoed walls and water intrusion rarely show signs of the rot occurring within (photos right). Because it is so difficult to spot these problems from outside, I think it is worth spending the money for a certified specialist to check potential moisture problems on stucco walls. A specialist has the tools and the experience to make an accurate assessment of what's inside.







Rot lurks below. Swollen joints and cracked paint on this hardboard composite siding are signs that water has gotten in and that the material is rotting.



Be wary with stucco finishes. It pays to be careful when inspecting a house with a stucco exterior. From the outside, nothing seems wrong with this barrier-type synthetic-stucco exterior (inset). Inside the wall, it's a different story.

Photo bottom left: Courtesy of Stucco Pro.

3. Check the roof from the ground

All roofing material takes a beating from sun, wind, rain and snow. So it should be inspected carefully, and that's not always easy. Both for insurance and safety reasons, I usually don't venture onto the roof.

A good alternative is to use a pair of binoculars to inspect the condition of the roof, the flashing and the chimney from the safety of the ground. If the view of the roof isn't good enough from the yard, I set up a stepladder. The added height is sometimes all I need.

In addition to looking for damaged or missing shingles or tiles, I check that the ridge is straight and that the roof deck doesn't look like a lake on a windy day. Wavy roofs typically mean the underlying sheathing is too thin, rotting or delaminating (photo right).

A roof often leaks at the base of a chimney when the flashing has failed. Binoculars can pick up all the obvious signs of failure, but it's also important to do a thorough check of the roof and chimney from inside when I look over the attic.

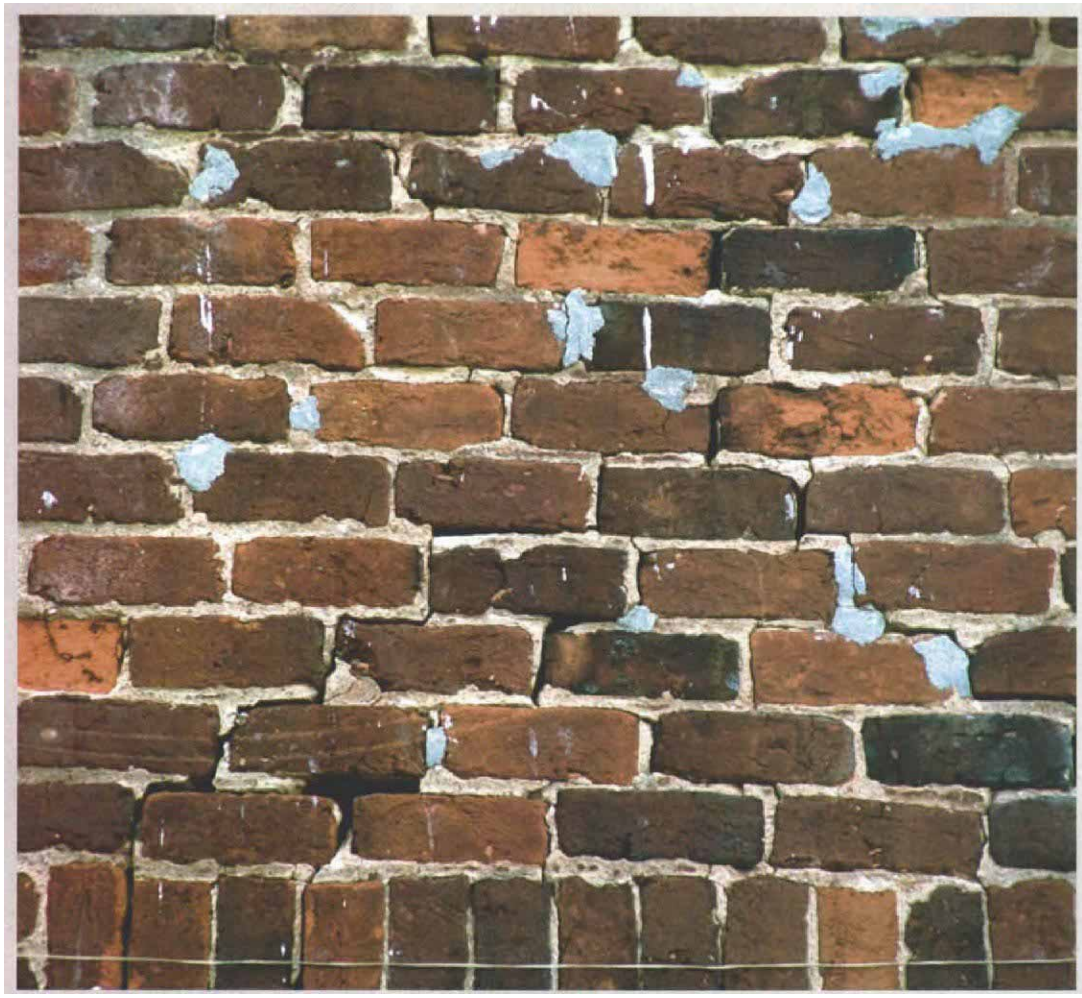


A roof should be straight. A wavy roof deck can indicate that the underlying sheathing is too thin or starting to rot or delaminate. A sagging ridge may mean the same thing.

4. For hints about the footings, look for a zigzag crack

When the ground beneath a house's footings settles or shifts, the foundation often fails. In houses whose foundations are made from brick, block or stone, a Z-pattern or zigzag crack through the mortar joints can indicate that the footing arid foundation have moved (photo right). I ignore minor cracks as signs of age, but I'm on the lookout for long vertical or horizontal breaks that form a continuous pattern. They are a sign of structural flaws.

The constant pressure of the earth and excess groundwater against a block foundation can cause the foundation to bow in and mortar joints to fail. Brick foundations are subject to the same problems as block, but an additional check should be made on the brick itself. New brick should be sound, but watch for old brick foundations or new foundations built with recycled brick. I use my awl to probe for signs of disintegration.



Look for continuous or zigzag cracks in masonry walls. Although small cracks are to be expected, the long, continuous cracks in this old brick wall suggest that the footing and foundation have settled.

5. Keeping an eye on hot water

There are a number of appliances that should be checked, but I give water heaters extra attention. Every water heater is required to have a temperature-and-pressure (T&P) relief valve (photo left). It is the last line of defense against a catastrophic water-heater failure—namely, an explosion.

If the thermostat and the water heater's overload-protection device fail, water will overheat until it reaches a preset temperature or pressure. At that point, the T&P relief valve should take over, releasing water as a steady drip or sputter and thus averting the chance of any more serious trouble.

In the old days, water heaters did not have a place in the tank for a T&P valve. Plumbers installed them separately on either the hot-water or cold-water line. If I see one of these arrangements, it is an area of concern because the valve is probably so old that it no longer works properly. On modern heaters, inspectors should make sure the valve is installed properly. A discharge pipe should extend from the valve to a few inches above the floor.



A valve every water heater needs. A temperature-and-pressure (T&P) relief valve is an essential safety device for every water heater. The discharge pipe should extend to within a few inches of the floor.



All dressed up, but it won't pass go. Insulating jackets around water heaters may help save energy, but they cover up manufacturers' warnings and can prevent a T&P valve from functioning properly.

Should you raise the little arm on the T&P valve to release some hot water? No, because you run the risk of having the valve drip continually or jam. I just make sure the valve is installed correctly and that it's not dripping. By the way, I always write up water heaters with insulating jackets, which cover up the scald warnings and can prevent the T&P valve from opening (photo right).

6. Fire dangers hide in the garage

A combination of gasoline fumes, oil spills, half-empty paint cans, paint thinner and lack of ventilation presents real potential for fire in the garage. So adjacent living areas should be protected from fire that might break out. Local codes vary, but a single-family house with an attached garage typically needs fire walls with a one-hour fire rating.

A fire door may also be required, and metal-clad doors (without windows), solid-wood doors and doors faced with sheet metal on the garage side are often accepted by local building officials as fire doors. They are easy to spot. However, it may be tougher to determine whether a wail meets the requirement. One way to check is to remove a receptacle cover on the fire wall and check to see that the wall has been built to meet all of the necessary local requirements.

A garage built beneath a house is a common design. Here, the ceiling must also be a fire wall. When a detached garage is connected to a house via a breezeway (photo right), a fire wall separating the garage and the breezeway must extend all the way to the roof of the breezeway.



Garages can pose special fire hazards. This detached garage is connected to the house via a breezeway with an attic. A fire wall between the garage and breezeway attic must extend all the way to the roof.

7. When heat gets too hot

When I look at a house with forced-air heating and cooling, I start with the ducts. And I don't just check to make sure that they are not falling apart. I also check to see whether they are electrically hot.

I once inspected the house of a do-it-yourselfer friend who mentioned a little problem he was having with the ductwork. It seems that after dark, the ducts would occasionally light up as he walked across the floor. When I looked carefully, I found some telltale burn marks where a couple of loose sections of duct fit together. When I moved the sections of duct, I could see an arc of electricity. The problem was not with the furnace wiring but with neutral current that was flowing through the ducts. Improperly wired subpanels and electric cables that are run on top of the ducts are the most common sources (photo above) of this current.



Ducts may carry mere than hot air. Thanks to careless wiring, furnace ductwork may be carrying an electrical current. A good first step in the basement inspection is to check for the potential problem with an electric meter before starting a full-blown look at the heating system.

I start my inspection of the ducting system by measuring the voltage between the metal duct and any ground point. The reading should be 0v. If the reading is above 20v, the duct should be grounded. If voltage reading is anything that goes above 50v, there's a hot-wire fault to the duct, and the problem should be fixed right away to prevent the possibility of electrocution.

8. Drain lines have to be supported properly

Kitchens and bathrooms are the most used, and consequently most abused, rooms in a house. I find all kinds of plumbing, electrical and mechanical problems, along with rotted cabinet bottoms and warped floors. I begin at the kitchen sink, and one of the most obvious questions is how fast the sink drains. A sink full of water should drain in less than a minute. If it drains slowly or not at all, there's a blockage in the trap or in the drain line. But the cause may not be what you think. A common culprit for a slow kitchen drain is lack of slope in the line.

Today's plastic drain pipe can soften if hot water sits in it. If the pipe supports are too far apart (and most are, even if they follow code), the pipe will start to bend between them (photo left). Food debris then settles in the low spots, eventually causing the water to back up.



A sag here is inevitable. One support is all this drain line got—a good recipe for a blocked line. Time and hot water eventually will produce a sag in the line that will collect debris. Pipe supports should be installed at least every 4 ft.

A simple test for determining this particular problem is rapping on the bottom of the pipe with something heavy (such as a pair of lineman's pliers). If the pipe is full, you will hear a dull thud instead of hearing a hollow sound.

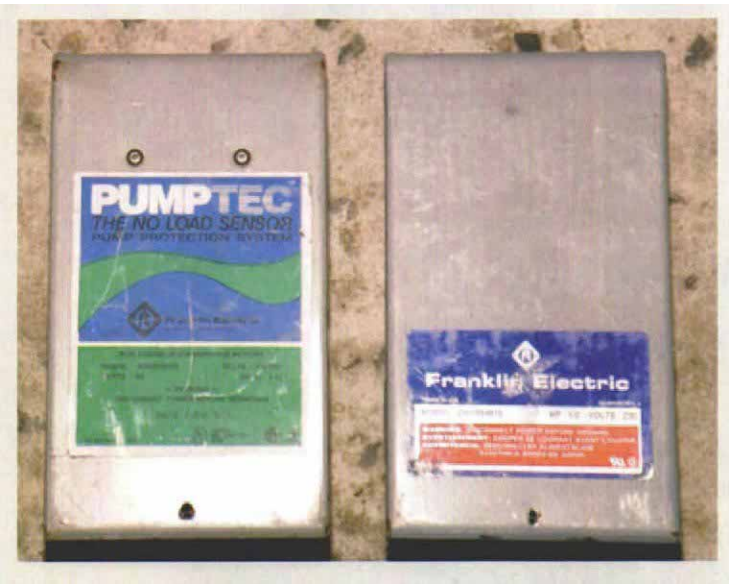
I also like to listen as water flows down the drain. A glug-glug-glug suggests there is a vent problem or, more often, both a vent problem and a partial line blockage.

9. Is there enough water?

In the city, an adequate water supply is taken for granted, but not so in the country. Rural homes usually depend on wells, which often offer only limited water volume and pressure.

A typical 6-in. well holds about 1.6 gal. of water per ft. However, a well that is 200 ft. deep doesn't necessarily have 200 ft. of water in it. In fact, that's rarely the case. The water level in the well, known as the static water level, can be at any depth. The recharge rate in my area—how fast the water in the well is replenished—is usually between 1 gal. and 5 gal. per minute.

Although a recharge test is beyond the normal scope of a home inspector, there may be other indicators of a low-yield system. I look for a low-pressure cut-off switch or a no-load current-sensing device near the water-pressure tank (photo above). A low-pressure switch cuts off power to the pump if the system pressure falls below 12 psi, A no-load current-sensing device measures the flow of electricity to the pump. When the pump has no water to draw, it uses less current. The device senses the difference and cuts power. Neither device is necessary if the well has plenty of water all the time.



Hints that water is in short supply. A low-pressure cut-off switch and a no-load current-sensing device such as these are ways to tell that homeowners may have a shortage of water in the well.

10. Plumbing cross connections can contaminate drinking water

Sloppy plumbing practices can sometimes lead to what's called a cross connection, an unintended mix-up that has the potential to contaminate the drinking-water supply. A cross connection occurs when a back flow pulls contaminated water into uncontaminated water. Far-fetched? Not as much as you think.

Back flow might result from a break in a water main or deep in a well. As water flows backward toward the break, it pulls water with it, just as with siphoning gasoline from a car's tank. If a hand-held shower head is immersed in a tub of dirty water, for example, that contaminated water can be pulled into the water supply.

Preventing this kind of problem is simple with the installation of a couple of devices. One is a dual-check back-flow preventer installed on the main water line (photo above) that allows water to flow in one direction only: into the house, not out. The second device is a vacuum breaker, check valve or similar device installed on all hose-bib connections inside and out. These things are known as point-of-use devices. When used together, these two devices can prevent contamination of a home's water supply from cross connection.



Warding off contamination. A dual-check valve installed on the incoming-water main prevents water in the house lines from flowing back and contaminating the well or the municipal-water supply.