EXCLUSIVE FIX-IT REPORT #3

The Property Inspection and Repair Bible Part II

Price: $67.00.

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Call Kevin at (713) 858-1330 for your next inspection.

Provided to you by Doug Smith at
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Foundations for Investors, Part I

Foundation repair can be the most expensive repair that you will make to a property. One of the saddest things I've heard in the investment community are the stories of investors who have purchased a property, rehabbed it, and put it on the market only to have the buyer's inspector tell them there was a problem with the foundation. Foundations can be very expensive to repair, and repairing them after the house has already been fixed up and painted can mean redoing a lot of sheetrock and paint work. All of this means money out of the investor's pocket, and if the expense goes deep enough, it just might wipe out your profit.

Part of my mission on this planet is to help keep the investor's money in his or her pocket. It comes under the heading of "Comforting the disturbed and disturbing the comfortable" in my charter. That's why this month we are going to learn how an investor stays out of trouble when a house has a foundation problem. We are going to talk about what the foundation does, what causes problems with it, how to tell those problems, and how they go about fixing them. This is the lecture portion of the foundation training. To get the required lab, you'll have to go on the bus tour with the RICH Club Boot Camp September 28-29. I will show you all about it as we go from house to house, and soon you will be able to make the evaluation of the foundation with a certainty born of knowledge and experience. Sounds good, huh? Let's get started.

The foundation of a house, whether it is a concrete slab (slab on grade) or a block and beam (pier and beam) foundation has a job. The job is to keep the house level and stabile. When the foundation moves up or down or side to side, then the platform that the house is sitting on enters a state of failure. It is failing to perform the function for which it was intended. What this means is that everything that was depending on the foundation for support is now in jeopardy, because the support is no longer there. It is like one of your legs suddenly becoming 2" shorter than the other one … it has consequences for the way you stand and the way you walk.

When the foundation is no longer doing its job, there are certain tell tale signs that appear. Here's what to look for when you are checking out the house before you buy. On the outside, look for cracks in the brick veneer. These cracks may be stair-step, vertical, or horizontal. There may be cracks in the grade beam (the part of the concrete slab that you can see at grass level), and there may be a separation between the doors or windows and the siding that comes up against those doors and windows. The cracks next to the doors and windows will look like a long skinny pie slice with one end open wider than the other, or it may look like. Stand at one corner of the house and look along the mortar lines or the lines of the horizontal siding. If there is a deflection (a rising or falling of the foundation) then you will most likely be able to pick it out here.

On the inside, look for cracks radiating diagonally from the doors and windows in any direction. Look at the tops of the doors, do they have that little pie slice between the top of the door and the door jamb? Do the doors open, close and latch properly or do they stick? Are the windows operating the way they should or are they jammed? Now look at the floors. If there is hardwood flooring and the foundation has moved, you will see little cracks open up between the sides of the boards where they abut one another, and you may also see where the boards have separated end to end due to the stress of the foundation moving.

Now get out you 4' level and go from room to room. Put the level on the floor near the outside wall of the room at right angles to the wall. There is a bubble in a little glass vial in the middle of the level, and on either side of this vial is a line. The bubble has to be exactly in the middle of these two lines for the level to be sitting level. If you have to lift up one end of the level to get the bubble to go between these two lines on the vial, then you have deflection. Deflection means the floor is not level and foundation has probably shifted. The distance between the floor (carpet, tile vinyl) and the bottom of the level is the amount of deflection in 4'. The allowable deflection is ¼" in 4'. If you have to lift the end of the level up ¼" or more, then you need top have the foundation looked at by a licensed structural engineer or a reputable foundation contractor.

Once you have checked the floor with the level at right angles to the outside wall of the room, turn it to be parallel with the wall. In other words, you have checked the foundation from left to right, now test it from front to back. Go from room to room and check all the floors. You can also put the level on top of the door trim and on the window sills to check for level as well. Again, the maximum allowable deflection is ¼" in 4' before you need repairs.

We know about the doors and windows and sheetrock cracks, but is there anything else that happens to a foundation? Yes. There can be damage to sewer lines that run under the foundation, they can become separated or broken, and then you have to dig them up to fix them. That gets expensive. Gas lines are forbidden to be placed under concrete slabs, but some people put them there anyway because they think that it is more convenient for them. If a gas line gets ruptured under a slab it turns into a very expensive mess to repair. The other thing we see is that water lines, especially the line that comes into the house from the water main, gets pulled apart when the slab gets raises again.

What I have told you about checking out foundations by looking for separations and checking the floors also holds true for block and beam foundations as well. Block and beam and pier and beam are the same for purposes of this discussion, they both mean that the house is up off the ground. The main difference between pier and beam and slab on grade is that the pier and beam house will move more than the slab house. That means that the front door sticks when the weather gets dry for awhile, and then it will work just fine again three days after the rain comes back.

What causes all of this hopping around of the foundations? Clay, mostly, black gumbo clay. The type of clay that we have in the majority of the subsoil; in this part of the country is a nasty black material. It is hygroscopic, which means that if there is water in the soil surrounding the clay, then the clay will attract and absorb the moisture. When it does this, the clay expands like a sponge. When it expands, it increases in volume and lifts everything that is sitting on top of it. When the moisture level of the soil surrounding the clay drops, as in a drought, then the moisture will migrate out of the clay into the surrounding soil to be evaporated back into the atmosphere.

So now you know what to look for when you're looking at a foundation, and why it does the things it does. Next month I'll tell you about the different ways to fix foundations, both slab and pier and beam, and how you can prevent this from happening to your own home or your rental properties.
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Foundations for Investors, Part II

Last month we talked about why foundations fail and what happens to the house when they do. We talked about why it is important to fix them from an investment point of view, and how to tell if the foundation is going to need work.

If you haven't already been to one of the workshops that have been offered by the RICH Club on foundations, then you'd best make sure you are signed up for the seminar and the bus tour on September 28 and 29. We will be traveling to several investment properties in the area, and I will talk at length about how to tell a bad slab from a good one, and what you need to know about pier and beam foundations as well. Important stuff, my friends, these repairs can easily run to several thousands of dollars.

If you have provided for that in your repair estimate before you buy the property, then you are in good shape. If you do not find out that the slab has to be repaired until after you have taken the property, then the foundation repair is going to come out of your refrigerator as you watch your profit margin swirl down the drain.

When you decide to repair a foundation, the first thing you do is make a diagram of what need to come back up. This is done by evaluating the foundation with a spirit level (a bubble level), or with a Compu-level, which is a computerized piece of equipment that has a base station and a long cord with a sensor/sender unit. The base station sits in the middle of the house, and the sender/sensor unit. The operator takes the sensor unit around to the different parts of the house and he gets a reading as to whether that particular part of the foundation is higher or lower than the base unit. From this he is able to determine what has to be raised and how much. He makes his diagram and then the leveling begins. This is all true whether the foundation is slab or pier and beam.

The basic repair for slab foundations is to dig holes under the slab at the edge of the foundation, and install concrete columns under the slab that are strong enough to support the weight of the foundation they will support. These columns are of two kinds: drilled piers, and driven piers. Drilled piers start as a hole that is dug into the ground to depth of about 12 feet. Steel reinforcing bar cages are placed in the hole, and concrete is poured in to fill the hole to about 18" from the bottom of the slab.

These drilled piers, also known as bell bottom piers because of the under-reaming at the base of the excavation, must then sit for a week to ten days for the concrete to cure hard enough to proceed with the next step. When the concrete is cured, then the crew comes back to the house and places jacks on the top of the concrete and literally jacks the house up until it is level. The foundation is then blocked up in the level position, and the holes are back filled.

Some engineers prefer the steel reinforced bell bottom piers because they are not subject to lateral movement (side to side in the hole), and will not allow for the deflection that is sometimes experienced with driven piers when the pilings hit a rock and begin to go off at an angle. On the other hand, just as many engineers like the driven piers because they are faster and easier.

Let's look at the other most common method of slab repair. The other type of pier is called driven pilings. Driven pilings are concrete cylinders about 6 – 7" in diameter and about 13" tall. You start this repair by digging a hole at the edge of the foundation. This hole will go under the edge and by about 24" deep under the slab, with a seat at the outside for the worker to sit on while he drives the piers. It looks like a hole with a shelf at 12" and a place to put your feet that goes to 24".

When all of these holes are dug under the foundation the workers will begin to push the concrete cylinders into the ground under the edge of the slab with a 100-ton hydraulic jack. They push one cylinder down to into the earth as far as it will go, when they relieve the pressure on the jack and put another cylinder on top of the one they just pushed into the ground, and begin to push them into the ground one after another until the slab begins to raise up from the jacking.

This raising up is called the "point of refusal", and means that the column of concrete cylinders has reached the point where the sub-soil refuses to accept further penetration. At this point a large concrete block called a capstone is placed on top of the cylinder column, and the pier is ready for the final leveling.

When all the columns have been driven to the point of refusal, then the jacking begins. With either kind of pier, driven or bell-bottom, the jacking part must be done all at once. That means that the whole side of the house must be jacked at the same time or the slab will crack like a sugar cookie as the wave of stress passes along the line of piers while it is jacked one pier at a time.

Typical jacking involves having one man in each hole with a hand hydraulic jack and a jacking foreman supervising the whole operation. The jacking foreman tells the men in the holes how many times to pump the jacks. The place where the foundation has settled the deepest may get 15 pumps on the jacks to start with, and the ones on either side where the foundation is not as effected may require only 100 or 5 pumps to start. The process of jacking continues with the jacking foreman checking inside and out with a large level or a Compu-level until the house is completely level. At this point cement blocks and steel shims are placed at the top of the capstone to support the foundation, the jacks are released and removed, and the holes are backfilled.

Pier and beam houses are a lot simpler. First of all, pier and beam houses are houses that sit up on blocks. Pier and beam is the name commonly applied to this type of foundation in much the same way as soft drinks are commonly

referred to by the name Coke. Pier and beam means that piers were put into the ground before the house was built and masonry blocks were placed on top of them to form the foundation to build the house on. Some houses have this system, most have a block and base system, which is a block of cement about 20" square and 4" thick that has concrete blocks or brocks built up on top of it. Either way, the sills (4" X 6" timbers or beams) are put on top of the blocks, and floor joists on top of these. Next comes a layer of ship lap or plywood that covers all of this structural material, and that forms the sub-floor of the house. This sub-floor is what we nail wood floors to, or put padding and carpet or vinyl over. With the slab foundation we just put flooring over the concrete.

The process of leveling pier and beam foundations also begins with a map of what needs to be done, and how much you are going to lift the foundation at each point on the map. Wood blocks and hydraulic jacks are used to jack the sills back into position, and again they are blocked into place using treated wood and metal shims.

Pier and beam foundations are much easier to repair because they are more accessible and do not require holes to be dug in order to do the work. Costs for pier and beam repair normally run from several hundred dollars to about $2,500 for the whole job. Driven piers run anywhere from $140 on up to $350 per pier for exterior piers, with interior piers being about another $75 each to break out the interior concrete floor and repair it when the work is finished.

Which kind of piers do I like? I [prefer the driven pilings because they can be done in one to two days start to finish. Drilled piers (bell bottom piers) take longer to dig, and have to sit for ten days to cure before the jacking can begin. Most investors I know of use the driven piers.

Well, that's all we have time for this month. If you have questions about foundations see me on the bus tour, or catch me at the next main meeting. I'll be happy to help. If you need an answer right away, you can call me and I will tell you what to do. I'm Kevin Smith, and I'll see you out on the property.

What Investors Need to Know About Roofs

This month we're going to look at residential roofing through a real estate investor's eyes. I'm going to tell you about problems and leaks and failures. There's stuff here about new roofs and wood roofs, overlays and FHA and what a licensed real estate inspector looks for when he evaluates the condition of a roof.

A roof replacement is a major expense in a rehab. It is also a major bargaining opportunity at the negotiating table. That's why you need to know something about roofs to be a successful investor. This article will help you make better decisions.

The job of the roof is to form a barrier between us and the elements. It keeps the rain off of our stuff, and gives us a shady place to go when the sun is beating down on us, and helps keep heat and air conditioning from leaving and going all over the county.

The roof we see most commonly in single-family investment property is called a composition shingle roof. These are shingles that are made out of a fiberglass mat that is impregnated with an asphalt material, with granular limestone products imbedded on one side. That is the 20-year fiberglass shingle. Architectural laminate shingles are 25 or 30 year shingles, and are made by combining two layers of composition shingle to produce a layered look which is meant to approximate the look of the old wood shingles. More on that later when we talk about new roof systems and how they go together.

The thing to remember about roofs is that when they are good they are very, very good, and when they are bad they leak. Leaks come in two flavors: repairable leaks and roof failures. We'll look at both, but suffice it to say that water coming into a house from a source other than the plumbing supply lines or little plastic bottles demands immediate attention. Leaks don't get better; they mature into full-blown roof failures and the costs to remedy the situation skyrocket.

When a roof leaks into the house, water gets on all sorts of things that weren't meant to get wet. This translates in to carpentry and sheetrock repairs, and possible carpet replacement or floor refinishing. Inspectors are required to go up on the roof when they inspect a house if conditions permit. No one expects you as in investor to get out the ladder and hop up on the roof. You can see a lot of the things you need to see with binoculars from the ground.

Let's look for problems. First, look at the roof planes themselves (roof planes are the flat areas of the roof that cover different parts of the house). Look all around the roof as you walk around the house. Look for obvious holes in the roof and look at the roof penetrations (any pipe or structure that pass through the deck) for signs of damage. Look at the chimneys, wind turbines and plumbing vent pipes.

Look for blistered paint or wood rot on the fascia and the soffit. These are all signs of potential roof damage.

In the attic, look for dark stains on the bottom of the roof deck, especially in the valleys of the roof and around the roof penetrations. Look for the brown tannin stains on the sheetrock ceilings inside the house. Take a minute to look in the attic if you can, and see if you can see something immediately above the damaged area that could be causing it. Try to figure out if they came from a roof leak, a plumbing leak or an air conditioning problem.

If you do go up top and walk around on the roof, look around the penetrations and make sure that they are all sealed up. Sometimes the squirrels will eat the lead roof jacks surrounding the penetrations and it will cause small leaks into the house. Look around the chimney for obvious signs of holes that water could run through, and while you're up there, check out the chimney, does it have a cap to prevent the rain from coming down the flue? Does the top of the chimney look like it will keep water out or are there holes or cracks in the cap that covers the part around the flue?

On the roof look at where guy wires for antennas are anchored and look at how patio covers and carports are joined to the house. These are all places where leaks can be found. Look for areas of previous repair. Look at the storm collars for roof vents that act as a little skirt to keep the rain from running down the base of the vents where it goes through the deck. See if there is or has been a basketball backboard nailed or screwed into the roof surface. These are all areas of potential leaks.

Last but not least, look for lifted, missing, cracked damaged or cupped shingles. These are all signs of serious trouble with the roofing system. When you look at the roof, remember what you saw outside when you go into the attic, that way you get the whole story.

Roof failures are different from roof damage in that damage can be repaired. Roof failures have to be replaced. Look at the south and the west side of the roof. These sides take the maximum amount of sun and that sunlight accelerates the aging process of the shingles.

When a roof fails, you will see a dramatic loss of the granular material in the mat of the shingle itself. "Chicken feathers", or cupping is the last thing the shingle does before it breaks off in the wind. They can also break off under your foot so stay off of them. Do not go up on a wood shingle roof unless you are a roofer. Same with most metal roofs; stay off. The only exception is corrugated metal roofs, because the shape of the metal panels gives the roof a lot of structural integrity.

Stay off of mineral asbestos roofs. These are the roofs you see in older parts of town like the Heights. The roof shingles themselves look like diamonds that are about 10 to 12 inches from point to point. These roofs typically last 60 to 80 years if no one goes marching around on them. Walk on an asbestos roof and you are almost guaranteed to start cracking the roof tiles, and when the tiles crack they leak. It is common to see a 70 year-old asbestos roof begin to leak after the exterminator has tented the house. Why? Because the workers cracked the tiles when they covered the house with tarps.

Look at those slots in the 3 tab composition shingles. These are rain lines. When they are new they are straight, even and perfectly parallel. When they age the parallel lines turn into an upside down "V" as the rain wears them down, and you will notice that the corners of the shingles on an aging roof are beginning to round off. Even if a roof looks good to you, try to gently curl up a corner of a shingle tab. It should be pliable and curl gently. If it brittle it is because it is old, and a brittle roof is a failed roof.

If you are not sure of yourself walking around on the roof don't get off the ladder. I've been doing this for 30 years and there are roofs I won't step onto. Remember to stay off of wood roofs, tile roofs, damaged roofs, metal roofs, asbestos roofs or roofs that are too steep for you. You're supposed to have fun out there, not get yourself hurt.

My recipe for re-roofing a rehab is always the same. Tear off the old roof right down to the plywood decking. If the house has a wood shingle roof, it has to be torn off and new plywood decking installed. Inspect the whole roof structure for rotten wood and replace it all. Install 15# felt paper to the deck, and install a 20 year 3 tab composition shingle roof according to manufacturer's recommendations. Install new roof jacks (lead flashing collars that go over roof penetrations, the pipes that stick through the roof), new drip and rake edge (the thin metal that goes around the outside of the roof at the fascia) and new ventilators, whether turbine vents, roof hawks, or ridge venting. Always specify what you want to your roofer so that his bid will match your expectations for the job.

There's more, call me if you get in over your head. I'm Kevin Smith, and I'll see you out on the property.

It’s Such A Gas

The more you go to workshops and the more you go to General Meetings and the more questions you ask other investors, the more prone you make yourself to success. The more you get out and find out, and the more you stick your hand out and introduce yourself to other people, the faster you will acquire the skills and abilities it takes to be successful in the real estate investment business.

One of the most important things to look for on a house when you are poking around a potential acquisition is whether or not it has gas supplied to the house, and whether the gas meter is still there or not.

First of all, some key information. Is this a house that has gas, or is this one of those all electric homes we’ve heard so much about? How do you tell? Well, you have to look at a couple of things. First, look at the water heater. Does it have a wire coming into the top of it, or does it have a vent pipe coming out of the top of it? Now look at where the stove goes. If the stove is there, does it have burners or elements? If you can find the HVAC equipment (Heating, Ventilating and Air Conditioning) look for the same things you looked for on the water heater, either a wire or a vent pipe coming out the top.

Now, it is possible that a house can have both gas and electric supplies for the stove and the dryer, but usually the heater is either one or the other, as is the furnace. Look around the yard, is there a gas meter there, or are there pipes sticking up where the gas meter used to be?

The meters are the property of Entex, which is now a part of Reliant Energy. It is their job to provide our houses with gas. Since it is their meter, they can come and pull it out whenever they want to if the gas has been turned off, but they have usually let them stay in place for several months, or even a year. The reason they pull them is that they need them at another location, or it is an old meter and they want to rehab it.

When they rehab a gas meter, they rebuild it so that it gives a true and accurate measure of the amount of gas you use so they can bill you for it. Gas meters that have too many birthday parties under their belt are known to pass the gas without wiggling their little needles enough to tell the meter reader how much you really used.

That’s why, here’s what. Once the meter is gone, it depends on the municipality where you live just what you have to do to get the gas turned back on to that house. Turning the gas on to the house is known as a GTO, or Gas Turn On. Some municipalities will let Entex put the gas meter back on if it has been removed for a few months. Others say that once the meter is pulled, you have to test the gas lines on the house to determine if they are safe or not.

Watch closely. You just found out about the “Why” and the “What” of houses that have gas, here’s the “How Much”. The gas test normally costs about $150 to $200. That is just for the test and the permit. Permit? Yep, almost all the municipalities have them, which means that they have engineers and inspection personnel to enforce permitting and building codes.

It is very important to take notice of the whether the house has a gas meter, and if it does, is the thing still there. The money for the gas test is what you spend for just that, the gas test. If the house fails the test, then the licensed Master plumber or his licensed journeyman plumber must begin to search out the source of the leaks in the gas system in the house. Now we’re talking about spending some serious money.

Leak in a gas system within a house can be anywhere. When they pipe a house for gas, there are a lot of turns and connections and valves and fittings that must be coated with sealant such as Rector Seal Pipe Thread Compound or Teflon tape, and screwed together. Every on of these connections is a potential leak.

Gas systems seem to do well and hold their seal for years and years as long as the gas supply to the house is not interrupted for too long (when people move out), and the meter is not removed. As long as the lines are not open to moisture and air, they tend to remain sealed. Once the meter has been removed and air is introduced into the gas piping in the house, then these seals begin to crack and dry out, and that’s what causes most of the leaks.

A gas test will find these leaks. Here’s what they do. They take a special tool called a Gas Tester and they connect it where the gas would be supplied to the house. All of the gas valves are turned off in the house so that if there are still gas appliances like stoves or furnaces or water heaters connected to the system, they are cut out of the system and the gas system is isolated. Then they pump air into this closed system of pipes inside the house using a bicycle pump. There is a column of mercury on this gas tester, and it resides in a little chamber inside a clear tube. When the air is pumped into the system, the mercury in the tube will rise. When it does, the plumber will mark where it is and leave it alone for fifteen minutes or so, then come back.

If the mercury has dropped, it means that the air they have pumped into the system has escaped, and that means there is a leak. Then you have to find the leaks, fix the leaks, and do the test again. Remember, this is all licensed plumbers doing the work of looking for leaks and man, that can get expensive in a hurry.

Here are some considerations. You can buy or rent a gas tester and the guy at the store will tell you how to use it. You can test it yourself before you call the plumber to know if you have problems or not. I used to have a carpenter working for me who did a lot of plumbing. He had a unique way to test gas systems in the

older houses. He would hook up his nail gun compressor to the gas line and put about 95 pounds of air pressure into the gas system, which is usually tested at somewhere between 7.5 and 15 pounds. He would turn off all the radios on the job and tell all the guys to be still for a minute, and would then shut off the compressor and listen. If the system was leaking, once it had 95 pounds of air coming through the leak, it whistled, and the leaks were easy to find. He fixed the leaks and called in the master plumber for the gas test.

Another thing to bear in mind is that once a house is 30 or 40 years old, it is probably cheaper to run new gas lines through the house because it is faster and more economical than chasing down those leaks. I do it routinely on the older houses I rehab, and it makes the best of a situation that can get very costly very quickly.

One last thing. You can call down to Entex Customer Service (713-659-2111) and ask them what you have to do to get the gas turned on. If a gas test is required, they will tell you.

I’m Kevin Smith and I’ll see you out on the property.

Electricity for the real estate investor

Most of don't know very much about electricity in the home. Oh, we know how change light bulbs and how to reset the circuit breaker when the hair dryer blows the circuit, but after that, it seems kind of mysterious to us.

All the people who do know something about electricity started out the same way, they didn't know anything about it either. The electricians, the municipal inspectors, the real estate inspectors, all of them. What makes them different from most of us is that they got some education and they got some experience. Today we're going to get some education, and then you can go back to the house. Your house, the rental property, your rehab, doesn't make any difference, to the electricity it is all the same.

If you have your heart set on learning about volts and ohms and amperes and theory, I'm afraid you're going to be disappointed. This article is just for the average investor who needs to know what he has to do with a house to sell it or rent it. I want you to be smart and I want you to be safe. That's what we're doing here. If you want theory and physics, they can be found elsewhere.

There are things you can learn to do on a house such as changing light fixtures and adding light fixtures. The Home Depot and Lowes people have workshops all the time on how to do these things. They have a billboard either at the outside floor, or just inside the store telling you where and when and what they are going to teach. Good classes from people who know what they are doing for the most part. That's the first place you can learn. The next place is on the Internet. Not as good because you can't ask questions, but much better because you have such a wealth of information. The next place is where I got most of what I know about houses: ask the people who are already doing what you want to learn how to do.

When I was rehabbing houses, if I had to pay someone else to come in and do something on that house because I did not know how to do it, I made a point of being there when they did it and watching them. I asked them more questions than a ten-year-old kid. Why this and why that, and how come you do it this way, and how do I do this or that? Something else I did was ask more than one person how to do something. That way I get the learning value of spaced repetition, and I tap into a different experience.

So that's the salad part of the article. Now let's get on to the meat and potatoes. What do you fix? First of all, you fix everything that does not work. If it is going to stay in the house, it has to work. The next thing to fix is anything that is not safe. If the sparks and smoke are coming out of it, then it is probably not safe. 80% of the wiring that homeowners do does not even vaguely resemble safe or workmanlike product.

Your real estate inspector or an electrician can begin to educate you on what is safe in a home. There is not enough space in the newsletter for me to take it all up with an electrical article, so I will just give the gist of what you are looking for and advise you to keep asking questions and learning.

Unsafe looks like broken fixtures or fixtures that are missing part. Some ceiling fans do not get installed properly, and they wobble when they are turned on. That can be because they were not mounted properly in the ceiling or it can also be because something is going on with the fan blades, like warping, or loose screws that attach the blade to the motor.

Outlets and switches that are missing their cover plates are hazardous. Bathroom, kitchen and garage outlets that are not protected by ground fault interrupters are hazardous. Spa tubs (indoor units like the Jacuzzis) and hot tubs outside have to be protected by ground fault interrupters so that people do not get shocked. Swimming pools the same way. Electricians know how to install GFCI's (ground fault circuit interrupters) because someone showed them the correct way to do it. You can learn how, too, if you are inclined to do so.

Any wiring that you can see out in the open that has black plastic tape on it or wire nuts holding the wires together is wrong. The way wires are connected is inside of a special electrical connection box, and that box is nailed to the framing of the house. It must have a cover on it, and that cover must be screwed on. In the attic that looks like a metal box with wires going into it, inside the house, it looks like an outlet box or a box behind the electrical switch. Homeowners like to put lights and fans on their patios, and they like to put lights of the soffits (eaves of the house). I call it stunt wiring. It's dangerous, and someone can get hurt because of it.

Check all the outlets in the house. You can get a little tester called a Circuit Analyzer that plugs into the outlet and tells you if it is wired properly or not. It costs $5, and you can learn the right way to use it in about 90 seconds. If you want to test the GFCI's, you can get a little different circuit analyzer that will test them too. It will have a button on top of it, when you press the button, it trips the GFCI. If it doesn't trip it is either worn out or wired incorrectly.

I encourage you to change out all the old fixtures, and put ceiling fans with lights in bedrooms, living rooms, dens and especially in rooms with vaulted or high ceilings. Replacing old light fixtures adds value to the house, and that's what we do around here. I am in favor of adding more light in kitchens and bathrooms by putting in four foot fluorescent lights in the kitchen and a smaller fixture over the sink if there is not one there already. Bathrooms get a nice 4. 6 or even 8 bulb strip fixture over the sink so that the ladies can see to put their makeup on in the mornings. If there is not an outlet next to the sink, I put one there, and it will be a GFCI device.

I always change switch and outlet covers if they have been painted. My typical color scheme for houses involves soft beige or khaki walls and ceilings (all the same paint), and white white oil based trim. The white sets off the beige/khaki and makes it a nice crisp presentation. Add white outlets, switches and covers and you have something that stands out for the buyers.

Aluminum wiring. Can't have the electrical discussion without speaking to this. Aluminum wiring was used in house between about 1965 and 1975. We stopped using it because it can cause fires. If a house has aluminum wiring in it, the wiring has to be repaired either by using outlets and switches designed for use with aluminum wiring, or the wiring itself has to under a process called "pig-tailing". Pig-tailing should be done by a licensed electrician.

The only way we know if a house has aluminum wiring is to look at the wiring. We look in the service panel (breaker box), or we take a couple of switch and outlet covers off and look a what is wrapped around the screws inside there. If the wire looks like a nickel, it is aluminum, if it looks like a penny, it is copper. If you cannot tell, then call an electrician or a real estate inspector to come out and investigate. This is a major health and safety concern, and one that must be included in you rehab if the house has aluminum wiring.

Catch me at the main meeting or call me if you have questions, and I will help you. That's what I do. I'm Kevin Smith and I'll see you out on the property.

Home heating for the investor

Furnace? I don't want to hear about the furnace. It's 120 degrees out there long about the time you're reading this article, and why would you turn your brain on for this? Money, that's why. Let's talk.

The three most expensive repairs to make to a house are the foundation leveling, roof replacement, and HVAC (**h**eating, **v**entilating and **a**ir **c**onditioning) replacement. You absolutely have to know the condition of this equipment when you are buying a house. This means that since all repairs are negotiating items when investors buy houses, you want to know all of these items that you can, especially the big ones like HVAC replacement.

A gas or electric furnace last about 15 years, some a little longer. Maintain this equipment with check-ups and cleaning and they can last a little longer still. If an inspector sees a furnace that is ten years old or more, he usually calls it out on the report as needing to be cleaned and serviced by a licensed technician. The reason we make such a big fuss over furnaces is that the electric ones won't heat the house very well anymore, and the gas ones can get into a condition that is harmful or fatal to the people who are sleeping in the house.

You as an investor are responsible for making that equipment safe and functional when you put the house back on the market. I won't get into the legality of it here, to say nothing of the ethical and moral considerations of this part of rehabbing. I'd rather tell you about the furnace. Besides, I know more about your furnace than your attorney.

Here's how the furnace heats the house. There is a heat source, either by electrical resistance, or natural gas flame. There is a way for air to go over the heat source and gather the heat, and a way to send that heated air into every room in the house. All these different pieces have names, and you'll learn more as we go along. There is also a part of the air conditioner there, and we'll talk about that next month when I talk about air conditioning.

Electric furnaces. Turn on your electric toaster at home and look inside. That glowing is electrical resistance heating. Electricity going through the wires inside the toaster, and as it does, the wires get hot from the flow of electricity and they start to glow with heat. Your furnace does the same thing. The main difference is that your toaster is 110 volt, and the furnace is 220 volt. The wires inside the furnace are bigger, and they can get hotter,

We take air into the furnace through the return air grill with a fan called an air handler. This is a fan that sucks air through the return air grill and blows it across these glowing hot wires. The air gets heated to as high as 135 or 140 degrees by the time it heads through a bog box at the end of the furnace called the

plenum. The ducts are attached to the plenum so they take that hot air and carry it to all the rooms of the house.

When an electric furnace starts up, there is a big draw of electricity to get the first of three (usually) big wires, or elements, hot. Each of the elements has little sequencers that decide when to send the electricity to the second and then the third element. The furnace does not start all the elements up at once, because the power draw would brown out your neighbor's houses. That's why they are sequenced.

Sequencers and elements and relays fail sometimes, and they can be repaired by a technician. Elements break after long use, and they can be repaired as well. When I rehab a house, I want to leave them with a good five years left in the equipment, and know that the equipment has been checked by a qualified person. More often than not, the houses investors buy need new HVAC equipment anyway.

Now on to gas furnaces. These are different than electric furnaces in that they use a different kind of energy, and it has to be handled differently. Basically there is am enclosed burner, a heat exchanger, and a vent pipe. That's the core of the gas furnace. The typical burner can be one foot wide and two feet long. It may be larger or smaller depending on make and model, but that is where the gas gets burned. There are a series of pipes, like the pipe in your gas broiler, that light up when the thermostat calls for heat.

The fire is burning, and the heat and byproducts of those flames are going up inside the heat exchanger. From there they go out a vent pipe to the outside of the house. The way we get the house heated out of all of this is that we blow that air from the air return across the heat exchanger, and the air gets hot from the metal heat exchanger. From there it goes into the plenum, out the ducts and into the rooms.

Electric furnaces usually either work or they don't. Turn them on and you should be getting some small amount of heat within five minutes. It will probably take about ten to fifteen minutes for the rest or the elements to get their share of electricity and start heating up some air. If they don't work, get them checked out. Let the technician test the equipment and make an evaluation. Tell him what you are going to do to the house (rent, sell etc) and how long you are going to hold onto the property. Then ask him what your options are. If there is ever a question of whether you should replace gas or electric furnaces, replace the equipment. There's too much at stake.

Gas furnaces have this thing called a heat exchanger. That's where the heat and byproducts of that combustion go. One of the by products of the combustion of natural gas is carbon monoxide. Carbon monoxide is an odorless, colorless gas that is poisonous to humans. The problem with heat exchangers is that they

rust or corrode through, usually along the seam where these tubes were formed from a piece of flat metal into a tube. When this takes place the heat exchanger is said to be "cracked", or perforated.

There are other things that have to be right for a reason on furnaces. Things like thermostats and the way the gas furnaces are vented through the roof. The majority of furnaces are in the attics and are installed horizontally. Some furnaces are installed vertically in the attics, and you will also see furnaces installed in s special closet in the hall, or even in the garage. All legal, both gas and electric. The just have to be installed properly.

Real estate inspectors check the furnace for function and safety, and will make recommendations based on the age of the equipment and the condition it is in. Most real estate inspectors do not evaluate the heat exchanger. If there is a question, the inspector recommends that a licensed HVAC technician be called in to fully evaluate the heat exchanger.

If you are an investor and you are going to be buying and rehabbing houses, you are going to need a good HVAC man. One who understands investment real estate and has prices more suited to investors repeat business as well. The man I use is Roy Evans. His cell phone is 281-960-6131. Tell him I said to take it easy on you.

Plumbing for the Investor

So how's the plumbing in the house you are looking at to buy? What do you need to look at? Why should you be at all interested in the plumbing in a house to begin with? What should I replace? Lots of questions, especially if you have not bought a house before, or if you are new to real estate investment. Relax, I have all the information for you. We are about to go through all the investor needs to know about residential plumbing, and how it fits into the rehab equation.

We pipe potable (drinkable) water into the house for what is referred to as domestic use. We also provide a system for the removal of wastewater used for sanitation purposes, and also for washing clothes, dishes and ourselves. When you stop to think about it, these two systems constitute a major time saver as well as a wonderful convenience. Just ask anyone who has ever had to carry water up the hill or had to go out back to the little house behind the house on a blustery winter morning.

The way we provide these conveniences of water supply and removal is called plumbing. Plumb is from the Latin word "plumbus", which means lead, as in the metal. Early water systems delivered the water into the houses by means of pipes made of lead. Today we make water and waste pipes from a variety of materials such as copper, iron and several types of plastic.

Plumb also means perfectly vertical. When I first started learning how to repair and install plumbing, I had to fix a lot of leaks. My leaks. Leaks on the stuff I had just replaced. Connections weren't tight enough sometimes, and that caused the fittings to leak. More often than not, the reason why they were not tight and could not be tightened up enough to stop the leak is because the plumbing was not plumb. I am not ashamed to tell you that once I learned that "plumb," meant straight up and down, I started putting my pipe in like that and the leaks all but vanished from my repairs.

Well, enough background, what do you need to know as an investor when you are looking at the plumbing in a house? First of all, does it work right? You find that out by exercising the fixtures. Turn the water on in the sinks and let it run for a few minutes. You are looking for a couple of things. Does the drain under the sink stay dry when the water runs through it? Does the sink drain quickly enough to keep up with the flow of water? Does the water get hot within a reasonable length of time?

Check out the faucets. Do they leak when they are turned on? Look around the handles if there are two faucets, and around the base of the faucet if it is a single lever faucet like you see in kitchens sometimes. Push the single lever back away from the sink to see if it will leak then. If it does, chances are that it needs a relatively inexpensive set of "O" rings on the cartridge inside of the base. Check the vegetable sprayer at the kitchen sink, does it spray clean and plenty, or does

it have some of the little holes in the spray head plugged up so there is no water coming from them? Does the vegetable sprayer leak from the hose just below the handle? Most investors replace faucets to update the look of the house, but if they are acceptable, modern, clean and also functional, why spend the money if you don't have to?

Showers and tubs are inspected the same way. Turn the faucets on and look for leaks coming from the handles themselves or water coming from the stems behind the handles. Turn the shower on and see if it leaks from the shower diverter handle. If you can get behind the shower, usually in a closet in the adjacent room, there is normally an inspection panel that you can remove and see the back of the faucets and shower diverter assembly. Look for water dripping from the pipes, handles and drains there. Look for water in a pool at the base of the tub or shower that will tell you that the drain is leaking.

If the house has two stories, look at the ceiling under the showers and tubs on the second floor to see if there are any tell tale signs of leakage such as wet sheetrock or brown stains on the ceiling. Look at the walls in the next room that back up against the shower or tub to see if there are any stains, mildew or wet spots. These all indicate leaks, and they all mean money to fix the problems.

In showers and tubs, look to see if the tile has separated or the corners have started to break open. In showers especially, look around the base of the shower to see if there are any cracks. If you can, pull the carpet up in the room(s) or hall adjacent to the shower wall and look at the carpet tack strip. If the tack strip is a blonde color, chances are that there have not been any leaks. If you pull the carpet back and the tack strip looks black, brown, or there are brown stains around the nail heads on the tack strip, it means that there is or has been a leak in the shower. Shower leaks can get to be pretty expensive, even if you only replace the pan and not the whole shower.

Flush the commodes, and flush them several times. Exercise this stuff, work it, make it do its job. Stand over the commode and put a knee on either side of the bowl and see if you can rock the bowl from side to side. If you can, the commode has to be re-set. If the loose commode is on a wood floor as in pier and beam houses, this loose connection usually means leaking water, and that means floor repairs under the commode.

If you are looking at a pier and beam house, shine your flashlight up under the house and look at the drains below the kitchen and the bathrooms to see if there are any leaks. Notice if there are any foul odors that would indicate that the sewer drains have come apart under the house, because that means sewage is draining under the house. It not only smells bad, it is extremely unhealthy. If you see these conditions, you are out looking at something that is beyond the reach of the normal do it yourself rehabber. Time to call in the plumber.

Water heaters, water wells and septic systems are part of the plumbing too, but there isn't enough space here to talk about them. For plumbing repair information you can talk to the folks at Home Depot, the hardware store or many of the plumbing supply houses. Most of them are happy to explain how things work and how to put them back together when they don't. If you have questions or if you get in over your head, call me, I'm always glad to help another investor.

I'm Kevin Smith, and I'll see you out on the property.

Water heaters – what the investor needs to know

Ah, for the joys of the civilized life. One of the things that contributes so much and is so much taken for granted is the ability to turn on a faucet in our homes and have hot water come out of it.

If you have ever traveled abroad, you may have had the experience where you turned that faucet on and tepid or cold water came out of it, or no water at all. You may have had to put a coin in a box by the tub or sink to pay to have a small amount of water heated for your bath or your dishes. It may have been the case that you had no hot water at all, and the only way of getting any was to start a fire and heat up a pot full for yourself.

Well, this is America, and no one has to sit in the cheap seats unless they choose to. Homes are expected to have a means of heating water for domestic use, and by and large they all do. That's fine, but what does that have to do with investing?

When you look at a piece of property to buy for investment purposes, part of you job is to do your due diligence. This includes looking at all of the parts that make up the house and making some kind of assessment as to the functionality of the different components. Reason being that in order to sell the house to the end user, you will be expected to provide certain things in good working order. The water heater is one of them.

It is important to know weather you have a good one or not, and if it is not good, to be able to tell the difference. This article will provide information about the kinds of water heaters, what to look for when you are evaluating them, and what it costs to replace them.

Which is which?

First of all, water heaters come in two basic flavors, gas and electric. The way to tell them apart is that the gas fired water heaters have a little flexible pipe coming into a box on the outside of the water heater, usually close to the bottom. This is the gas supply line and the gas control valve. Gas units also have a door at the bottom of the tank where you can look into the burner compartment and also light the pilot light. You will also see a pipe about 3 ½" across at the top of a gas water heater, and this is the exhaust vent for the burned gases created when the unit is heating water.

Electric water heaters do not have anything on the sides like gas control valves. Instead, they have a wire coming into the top of the unit, and this wire is enclosed in a metallic sheath to keep it from becoming damaged. Note that electric water heaters are 220 volt appliances, and that much electricity should be always treated with the respect. Water heaters, whether gas or electric, can be located

in the garage, a room in the house such as the kitchen or pantry, in the attic, or in a little shed attached to the house such as we see in the older parts of town.

How does the water get hot?
Now that we can tell one from another, how do they work? The gas-fired units have a standing pilot light (meaning that the pilot is lit all the time), and a burner that is about 6" in diameter at the bottom of the tank in that compartment behind the door we just described. A thermostat tells the gas control valve to open up and begin the flow of natural gas to the burner, which the pilot light will then ignite. At this point you have a fire burning under a vessel that holds 40 or 50 gallons of water. When the temperature has reached the temperature that you have set on the thermostat on the outside of the gas valve, the gas control valve shuts off until it is needed again to reheat the water.

An electric unit has two elements that are inserted into the tank from the side. You can tell where they are by looking for the removable metal covers on the side of the tank. These covers are about 6" by 8". When these covers are removed (remember that this is 220 volts here), you will see a small dial with numbers on it, wiring, and a large nut that goes over a threaded portion of the element to hold it in place and seal the tank from leaking.

There are two elements, one near the top of the unit and one below. The one on the bottom is rated for a higher wattage, meaning that it delivers more heat to the water inside when the thermostat calls for it. The element on top is smaller, and its job is just to re-heat the water that has cooled down between times of usage in the house. Electric water heaters, because there is no flame, have no exhaust vent.

Raise the water heater or not?
Any water heater that causes a "spark, a glow or a flame … and is located in a room where motor vehicles or volatiles are stored, or a room that opens onto a room where motor vehicles or volatiles are stored" must be raised to 18" above the finished floor. No exceptions. If it doesn't meet those two criteria you don't have to raise it, but if it does, you do. Gas fired, electric, oil fired (we're talking Wisconsin here) coal burning, it doesn't matter.

Gas water heaters can NOT have a copper gas supply line going to the gas control valve as we used to do in times gone by. The odorant in gas combines with the copper and it creates a compound that closes up the little holes inside the gas valve and causes a dangerous condition to occur. What has to be there is an Underwriter's Laboratory approved flexible gas line with a red top gas valve on it. Flex lines can not be interconnected as in taking two three foot pieces to make a six foot run.

Gas fired units must have class "B" vent pipe to exhaust burned gases. Class "B" pipe is double walled and provides insulation form the heat to surrounding

structures. This vent has to have al least 1” of clearance from any combustible material, and 2” from any framing member as it makes its way through the attic.

Electric units must have the supply line (the electric wire) enclosed in a protective sheath that covers the wiring from the wall to the attachment point on the unit. The place where the wiring attached must have a cover on it and the cover must be secure. One of the most common things that inspectors write up about electric units is where the homeowner has replaced the water heater and has not enclosed the wiring properly, and also that they have left the attachment cover open at the water heater, leaving the wiring exposed.

What kind of problems do they develop?

Minerals precipitate out when the water is heater up, and if we do not flush the water heaters occasionally this sediment builds up and begins to fill up the unit. When this happens, the bottom of the tank and as the water is heater, especially with gas units, we hear the gurgling or percolating sound in the tank.

Burned out elements are part of normal wear and tear. The lower element is the one that usually goes out, and you will know when it does because the hottest your water will get is lukewarm. There is just not enough push from the little re-heating element at the top of the tank to fully heat the water.

Rust on the tank can be seen on any water heater. It means a leaking fitting, or leaking roof or the fact that the tank has just reached the end of its life expectancy and begun to crack open somewhere.

Temperature and pressure relief valves. Every water has one. They keep the water heater from exploding if the control valve and or thermostats ever stick in the “on” position. These T and P valves, as they are called, must be replaced every three years. The drain for these valves must drain the water tot he outside of the building wherever possible, and must be a gravity only drain. The drain cannot come off of the T&P relief valve and go up, it can only go sideways or down.

When you look at the property, run the hot water in the kitchen and see how hot the water gets. Once you have hot water running from the tap, check and see if there is a percolating sound at the water heater. If you do, the unit needs to be flushed or replaced.

Replacing water heaters in a single family residential property will normally be a 40 gallon gas unit, or a 52 gallon electric gallons. If the property is over 2,000 square feet, it may have a second water heater. Replacing electric water heaters is a little more expensive than gas. Check with your supplier or your contractor for current pricing. Gas units are about $300 for the unit, electric are slightly higher.

This does not exhaust the information there is about water heaters, but it will give you enough information to make an informed decision about whether you will have to replace it or not. I'm Kevin Smith, and I'll see you out on the property.