
Coping with the Joys of Home Ownership

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***We Learned It All In
Kindergarten***

Most of WHAT I really need to know about how to live, and what to do and how to be I learned in kindergarten. Wisdom was not at the top of the graduate-school mountain, but there in the sandbox.

These are the things I learned:

Share everything. Play fair. Don't hit people. Put things back where you found them. Clean up your own mess. Don't take things that aren't yours.

Take a nap in the afternoon. When you go out into the world, watch for traffic, hold hands and stick together. Be aware of wonder. Remember the little seed in the plastic cup. The roots go down and the plant goes up, and nobody really knows why but we are all like that.

Goldfish and hamsters and white mice and even the little seed in the plastic cup - they all die. So do we.

And then remember the book about Dick and Jane and the first word you learned, the biggest word of all: look. Everything you need to know is in there somewhere. The golden rule and love and basic sanitation. Ecology and politics and sane living.

Think of what a better world it would be if we all had cookies and milk about three o'clock every afternoon and then la, down with our blankets for a nap. Or if we had a basic policy in our nation and other nations always to put things back where we found them and cleaned up our own messes. And it is still true, no matter how old you are, when you go out into the world, it is best to hold hands and stick together.

Robert Fulghum

Coping with the Joys of Homeownership



Please note: The information provided in this booklet is not meant to be an exhaustive handyman's guide but to acquaint you with some basic skills and ways to help you maintain your home.

Foundations

The foundation of a building is the part that sits directly on the supporting soil. The purpose of a foundation is to support and evenly distribute all loads to the soil it rests on. The most durable and common material used for foundations is concrete. Concrete is a mixture of cement, aggregate, and water. The cement alone consists of a combination of lime plus silica, alumina and iron oxide.

The nature of concrete causes it to harden, and when it does, small surface cracks may develop. This is a natural process and is nothing to be concerned about. Bear in mind, concrete will often develop cracks, which does not necessarily mean it needs repair.

Don't panic if when you replace your carpet or flooring you see small cracks in the exposed concrete.

The two most common types of foundations built in the Dallas/Fort Worth area are pier and beam and concrete slab.

Your inspection report will indicate the type of foundation your home has, concrete slab or pier and beam.

Today, the most common type of foundation found in the Dallas/Fort Worth area is the concrete slab-on-grade (usually referred as a "slab"). Concrete has great compressive strength, but little tensile strength (the inability to resist tension or stretching), which is why reinforcing steel (usually called rebar) is necessary. Post-tension cables are another type of reinforcement that is used in residential foundations. These foundations use steel cables that are laid through the form boards where the concrete slab is to be poured. Once the concrete has set, a truck with a hydraulic jack stretches the cable to provide tension. Because tension is applied after the concrete has set, the foundation is said to be post-tensioned. To better understand this, imagine lifting several books together by pushing in on the sides. The post-tensioned system uses the same principal to hold the slab together.

The second type of foundation, pier and beam, consists of piers spaced evenly under the house to support the floors and building load. One major difference between the pier and beam and concrete slab foundations is that pier and beam foundations have a crawl space between the floor of the house and the soil the house is built over. There are vents in the outer foundation wall and it is important that these not be covered. If proper ventilation is not maintained the floor framing and sub-floor can begin to rot.

In most areas of Dallas/Fort Worth you will find houses with some foundation movement. Generally, the reason for this is not poor construction, but poor maintenance. "How do I maintain a concrete slab?" you might ask. Good question! Let us explain why maintenance is necessary and then how you can maintain your foundation.

Factors Affecting Your Foundation

The important thing to keep in mind is that moisture variations cause this volume change in the soil that many homes are built on.

◆ **Soils** In most areas around Dallas and Fort Worth the soils are heavy clay. The heavy clay that causes the most foundation problems contains montmorillonite. Soil with a high percentage of montmorillonite can change in volume (increase or decrease) ten to fourteen times, with the addition or subtraction of water. What this means in plain language is, if the soil your home is built on is expansive clay (and not all homes in the DFW area are) it can expand and contract tremendously if moisture content is allowed to fluctuate. When the clay soil is increasing in volume it can exert a force of three to fifteen tons per square foot. Most houses only weigh 350 to 450 pounds per square foot; consequently, the volume change can move a house up and down easily. Some people ask us, "Is this the black clay that does this?" Yes and no, color is not a good indication of whether soil is expansive. Expansive soils can be red, black, gray or even orange.



◆ **Moisture Content** Now lets get back to the subject of maintaining your foundation. Since the moisture content under and around the perimeter of your foundation determines foundation movement, it follows that you should maintain the moisture content as evenly as possible to minimize movement. "Why can't nature take care of this?" you may ask. Let me explain it this way. "If you lay a large board on the ground and leave it for a week or so, moisture will build up underneath it, because the moisture cannot evaporate into the air with the board on it" The same thing happens with a concrete slab foundation, only on a larger scale.

If the moisture content is not equalized under and around the foundation, the foundation may shift and crack.

When hot, dry weather comes along, some of the moisture will evaporate from the soil around the perimeter of your foundation, causing the soil around the perimeter to dry and shrink away from the foundation. This allows more moisture to evaporate from under the edge of the foundation. At this point the dry soil under the edge of the foundation has lost its load-bearing capacity in comparison to the soil under the middle of the foundation and allows the edge of the foundation to sag. If the foundation slab is cracked, it may or may not warrant repairs. This judgment should be left in the hands of someone that is experienced in inspecting foundations, a structural engineer.



Hot, dry weather is one of the biggest reasons for changes in moisture content under and around your foundation, but it is not the only factor in our area. Two others are uneven watering around the perimeter of the foundation or yard, and removal of moisture from under your foundation by trees and shrubs.

"What can I do about such items?" you might ask. Lets look at each item:

◆ **Uneven Watering:** When watering the foundation or yard, always remember the important thing is to maintain an even amount of moisture under and around your foundation. Now, we don't mean you should float your foundation; too much water is just as bad as not enough. The easiest way to maintain a constant amount of moisture under and around your foundation is with an automatic sprinkler system.

◆ **Soaker Hoses:** If you do not have an automatic sprinkler system, you can maintain your foundation with soaker hoses. These hoses are either flat with small holes in them, or are a black rubber "leaky hose", If you use a soaker hose you should be aware that timers are available to use with them and will greatly simplify their use. Pier and beam foundations should be treated the same as slab foundations, when concerning watering programs.

◆ **Plants:** Another problem you might experience concerns the vegetation and trees around or close to the foundation. Some trees and shrubs require large amounts of water, and they are not particular where they obtain it. An ideal moisture supply for trees and shrubs is under concrete slab foundations. If there is not an ample supply of moisture, the tree and shrub roots will pull moisture out from under your foundation, causing the soils to dry and shrink, allowing possible foundation problems.

Soaker hoses should be placed with the holes down and two to three feet out from the foundation.

Remember that your trees and plants will compete with the foundation for moisture.

*I have lived a long time,
And the longer I live,
The more convincing proofs I see of this truth:*

*'God governs the affairs of men. And if a sparrow
cannot fall to the ground without his notice, it is
probable that an empire cannot rise without his aid.'*

*We have been assured, in the sacred writings, that,
'except the Lord build the house, they labor in vain that built it'.*

~Benjamin Franklin

Landscaping



Consult with your nurseryman for plants and trees that will not draw excessive moisture from around the foundation.



Please remember that the soil should not go above the brick line.

If you are going to plant trees and shrubs around your new home, here are some guidelines: In Texas, shade trees should be primarily on the east, west and northwest sides of a house. Also, we encourage you to carefully select the type the tree being considered. Decide what you really want from this tree or shrub - shade, fall color, or just eye appeal. Do you need a deciduous tree to shade an outside air-conditioning unit in the summer, while letting sunlight through in the winter? Do you want a line of evergreens to provide a windbreak in the winter and privacy the rest of the year? Another factor to consider is maintenance. Are the trees or shrubs drought resistant, or will they require large amounts of water? Along with these considerations, you should also think about their location in relation to plumbing lines, power lines, and your foundation. If your house is close to other houses, you should consider your neighbors. Why develop a problem with a neighbor if you can avoid it? Landscaping can increase your property value and save on your energy cost if done properly.

Some trees that can cause more than their share of problems are weeping willows, cottonwood, and Mulberry. They have root systems that spread out extensively and can damage foundations or invade sewer lines. Some good trees, as far as their roots are concerned, are red oak and live oak.

Shrubbery can also cause problems. Certain types require large amounts of water, such as wax leaf ligustrum or red-tipped photinias. When planting shrubs or flowers never dig areas next to your foundation that will be lower than the rest of the yard. This can cause problems by trapping water next to your foundation. Another way water is trapped next to your foundation is by metal or concrete borders around flowerbeds. Always remember to provide good drainage away from your foundation. The soil should slope gently away from your foundation. Happiness is planning, planning, planning.

Drainage

In conjunction with a good watering program, it is absolutely necessary to have good drainage around your foundation.

Most new homes start out with good drainage, but as years go by, the drainage deteriorates. One reason for this is the settling of dirt around the foundation because of rainwater dripping off the roof. Most of the time this can be corrected with fill dirt, but not always, so please do not ask your inspector how to correct a poor drainage situation, (he is not a specialist in this field and every case is different).

If fill dirt is needed, we suggest using the same type dirt your house is built on.

Generally speaking, sand or sandy loam is not good fill dirt if mixed with heavy clay. The reason for this is that sand or sandy loam does not have good load-bearing capacities compared to clay soil. Sometimes re-grading around the foundation is necessary to correct a poor drainage situation. Poor drainage does not necessarily mean the foundation is damaged, or will be damaged in the immediate future. If the situation is not corrected, it may be many years before the foundation is damaged if ever. Every situation is different.

Too much water around a foundation is just as bad or worse than not enough water.

If your yard has swales or sloping channels, we encourage you not to do away with them unless you are sure they are not part of a drainage system.

You should not have standing or ponding water next to your foundation. Three common reasons for too much water are poor drainage around the foundation, a malfunctioning automatic sprinkler system, and leaking plumbing under the foundation. Too much water around your foundation will cause the soil to lose its load bearing capacity and very possibly cause foundation problems.

Many times we see homes that have poor drainage because the lot the house is built on is flat. After talking to the owners we find that originally there were swales or sloping channels to help water drain away from the foundation. When the owners bought the house, they thought the yard would look better flat, or it would be easier to mow the grass, so they leveled it.

Warning: If you do level the yard, you may void any builder's warranty a new home has concerning drainage.

Automatic Sprinklers

If you have an automatic sprinkler system, bear in mind, you should check it every few weeks to make sure all stations are operating properly. We have found that sometimes a lawnmower, being run over or someone doing repair work will damage a sprinkler head. Most sprinkler systems are programmed to operate in the early morning hours (i.e., 3:30 AM - 5:30 AM), so they not interfere with other water use during the day. However, because of the programmed time, no one sees the system in operation and whether or not it is malfunctioning. Therefore, you should walk the system through the stations manually every few weeks to check it. An indication or "red flag" in this area would be a larger than usual water bill or water ponding in the yard.

When a sprinkler head is broken, hundreds of gallons of water can be dumped in one area, possibly next to your foundation, creating problems in that area.

**Don't let what you cannot do
interfere with what you can do.**

Rain Gutters

Rain gutter downspouts need three to four foot extensions at the bottom to direct water well away from the house.

If your new home has poor drainage and you do not have rain gutters, then you should consider installing them. Rain gutters and correction of poor drainage fall into the category of helping to maintain your foundation. Rain gutters can be a valuable part of your foundation maintenance program. You must remember they are like everything else and must be maintained. If you allow them to become clogged with leaves or debris, they can do more harm than good by dumping large amounts of water in areas where it is not wanted. We know cleaning leaves out of rain gutters is not everyone's favorite pastime, so we suggest screens over the gutters, which are manufactured for just this purpose. Also, no one likes moving downspout extensions every time they mow the grass; the good news is that there are some extensions made out of flexible hose with a steel spring inside them to solve the problem. The spring rolls the hose up when it isn't raining, but when it rains, the weight of the rain water it unrolls it.

Note: As inspectors, we do not have the right to suggest installing rain gutters because they do not fall into the category of something that is broken or not performing as intended.

Roofs

The purpose of your home's roof is to protect your home in all kinds of weather. The roof is the most vital factor in protecting your home and enhancing its looks and value.

The roof may be the most overlooked component of a house even though it makes up two-thirds of the house's appearance.

Most types of shingles are placed partially atop one another, like the feathers of a bird. Roof shingles are at least two deep and have an extra layer along the edge. For additional protection against leaking, flashings are feathered in under the shingles at several points. Think of flashings as special purpose shingles; they interweave with other roofing materials to help shed water and may be either metal, rubber, or the same type composition as the shingles. You will find flashings in valleys (where two slopes meet), around chimneys, plumbing vents, dormers and anything else that penetrates the roof's surfaces.

Since there are numerous styles of roofs and roof coverings, we may not cover the type of roof on your home, if that is the case you should contact someone who is familiar with your type of roof.

Composition

Please don't ask your inspector how much longer the roof will last because he does not have a crystal ball.

One of the most common types of roof covering, and by far the most popular and least expensive is an asphalt composition shingle. The asphalt composition shingle is composed of roofing felt saturated with asphalt and coated with mineral granules. Some newer ones have a fiberglass base for greatly improved weather and fire resistance, with a life span of 15 to 25 years. No matter what type of roof you have, we would have to know when it was installed to be able to tell how long it will last and we usually don't know the answer to that question.

Wood Shingles

The difference between wood shingles and shakes is in their size: shakes are thicker and larger.

Another common type of roof covering, which is slightly more expensive, is wood shingles. The life span of wood and asphalt shingles is about the same, depending on the weight of the asphalt shingles and the grade of the wood shingles. If your home has wood shingles, you will see stains on the bottom of the shingles in the attic. These are not water leaks, but the natural oil stains of the shingles. At times you may see daylight in your attic. This is not necessarily something to be concerned about, water flows downward but light can shine upward, and this is what you may be seeing. Your inspector is experienced and understands this and will thoroughly inspect the roof for water leaks.

Wood Shakes

Wood shakes are similar to wood shingles but much thicker, rustic looking and more expensive than wood shingles. Wood shakes generally last longer than shingles because they are thicker. A difference between wood shingles and wood shakes is the way they are installed. Felt roofing paper is placed under the wood shakes. The felt paper actually sheds the water and the wood shakes protect the paper from the sun's deteriorating effects.

Slate or Clay Tiles

Clay tiles are used more in the southwest and slate tiles in the east. Tiles are generally much more expensive and break very easily. These types of tiles should not be walked upon unless you know what you are doing.

Built Up Roofing

Built-up roofing, unlike shingles, shakes, slate and tiles, must be absolutely waterproof because it is flat. This type of roof is used only on flat or very low pitched roofs and is usually fabricated on the job by laminating layers of felt with asphalt or coal tar and then topping with gravel. Often there will be bubbles on a built up roof, but this does not necessarily mean the roof needs to be replaced. However, do not pop any bubbles while you are walking on the built up roof as you may create leaks. Generally these areas can be repaired without too much trouble.

FACTORS AFFECTING YOUR ROOF

We encourage you to look at your roof as you are driving up to your house. Since you can get a good view of the roof that way.



If you have trees close to your house, do not let their limbs touch the roof.

Debris on your roof can also cause many problems.

Sometimes when an inspector is on a roof inspecting it, a homeowner will ask him to kick the debris off of the roof.

◆ **Checking your roof:** After a storm you should always check your roof for missing shingles, missing rain caps on furnace and water heater vent stacks, and natural gas appliances that require vents. You don't necessarily have to climb on your roof to check these out, using binoculars works just as well and is much safer. Make a habit of looking up at your roof whenever you approach your house, either from the front or back yards. This way you will notice immediately if something is wrong. Furnaces are expensive and a missing rain cap on the vent stack can shorten the life of the heat exchanger by more than half. Note that not all pipes sticking up on your roof need rain caps, some of them are plumbing vent pipes.

◆ **Too Close for Comfort:** Tree limbs can also affect your house. A limb lying on the roof and blowing back and forth can cause considerable damage. Bear in mind, if limbs are closer than thirty six inches to the roof, they can be a ladder for squirrels, roof rats and carpenter ants. We all know about and dislike rats, but what about cute little squirrels? Squirrels are a member of the rodent family, and can do as much damage as rats, if not more, chewing through electrical wires, plastic vent pipes and siding. They can literally rob you of your peace and quiet.

◆ **Cover up:** Often, especially in the fall of the year, leaves and small tree limbs will build up on your roof, particularly in the valleys. Although roofs are designed for water to flow downward, when this happens, it can cause water to back up and leak into your attic and home. We don't like to do this because if the debris has been there too long it may be stuck to the singles and will damage them. We encourage you to be careful about removing debris, and the possibility of damaging your shingles, we also suggest you keep people off of your roof unless they are professionals.

There is a gray plastic used on some air conditioning and heating ductwork that deteriorates when exposed to light.

- ◆ **Ventilation:** Something else you need to consider is proper ventilation in your attic. Proper ventilation can lower the cost of cooling your home by 60 percent, prolong the life of roofing materials, and prevent premature deterioration of attic insulation materials. Bear in mind, a little extra ventilation in your attic is better than not enough. Two types of ventilation are wind turbines and power vents. Installing wind driven turbines is an easy do-it-yourself project and the ideal time to install them is when you are having your roof recovered. Remember that they must turn freely or they will leak water into your attic. We have been asked which is best, an electric power vent or a wind driven turbine. Studies show that any savings by power venting are offset by the cost of the electricity it requires. (It is also interesting to note that power ventilators have a history of having a short life span.) Extra consideration is needed when installing any form of attic ventilation in attics with the older gray plastic style of ductwork.

Air Conditioning and Heating

Do not use the furnace enclosure as a storage cabinet; it could easily become a fire hazard.

In combined central air conditioning and heating systems, the filter should be changed at least once a month to allow your system to operate at peak efficiency. One trick you might use to help remember to change your filter is to make a note with your house payment and change the filter every time you pay it. Of course, if you stop making house payments, I guess you won't have to worry about changing the filters.

We recommend that during the summer you turn the gas pilot off in the gas furnace in a combined system to prevent condensation and rust. Rust is the main enemy of your furnace's heat exchanger.

Keep your outside A/C unit clean of debris, keep shrubbery a minimum of 2 feet away and don't let your pets mark the coils

An item that requires minor maintenance is the condenser coil, which is the part of the outside A/C unit. The outside A/C unit needs to be kept free of leaves, grass, cotton wood fuzz and paper trash because if it gets clogged, the efficiency of your system is greatly reduced, the cost increases and damage may occur due to overheating. It is also recommended that you keep shrubbery a minimum of two feet from the unit. This coil may be cleaned by spraying water or air over it to completely remove any and all foreign material. One final note: if your dog is allowed to "mark" the coil, the end result can be the premature failure of the coils due to the urine etching away the coils. Be sure to turn off the power to the unit before cleaning and allow it to dry before turning the power back on.

Please consult with the operator's manual for proper start up if the unit has been off for more than 1 hour when temperatures are below 50° F.

If you have a heat pump and all power has been cut off for more than an hour at temperatures below fifty degrees, you should not attempt to restart the heat pump for at least eight hours after power has been restored, giving the heating element in the compressor crankcase time to warm up the lubricant and prevent valve damage.

Be aware that heat pumps have a defrost cycle, which usually lasts ten to fifteen minutes. If you see vapors emerging from the outdoor unit, or see frost on the unit during the winter do not be alarmed, this is normal.

Air conditioning systems should not be operated when the outside air temperature is below 60 degrees because your compressor is designed to compress FREON gas and during cold weather FREON liquid may reach your compressor and damage it.

Plumbing

Your home's plumbing actually consists of two systems: Water supply and wastewater. The major difference between the two is that the supply system is pressurized and the wastewater flows away due to gravity.

Supply Water

It is important to know where to shut off the water in case there is a leak because the water supply system is under pressure.

The main water shut off is usually in the water meter box generally located in the ground near the curb in front of your house. There is always a stop valve on the city side of the meter to shut off the water. We suggest that you buy a stop valve wrench. It is much easier to use on the valve than an ordinary wrench and can be bought at most hardware stores. You should keep it in a convenient place, such as the water heater closet, so if you need it in hurry because your home is flooding, you won't be wasting time looking for it. Some water meter box lids need a special key to open it. These keys may be purchased in the same place you buy your stop valve wrench and it would be wise to store them together.

If you suspect that you have a water leak a simple check is to shut off all of the water in the house and look at the meter to see if water is moving through it.

Another way to help locate a leak would be to shut off water to different sections of the plumbing system one at a time, such as the commode, water heater, or laundry faucets, checking for a leak after you have shut off each one. A red flag that may indicate a leak would be a water bill that is larger than usual.

A question home buyers often ask is, "How can I tell if the main valve is on or off?"

Following are some answers:

- ◆ Sometimes there is an arrow on top of the valve, when the arrow is pointing toward the house it is ON, when it is pointing toward the street it is OFF.
- ◆ In some cases, if the top of the valve is in line with the pipe, it is ON, if it is perpendicular, it is OFF.

- ◆ Other shut off valves are usually with supply lines under the fixtures they serve. These can be used to shut off the water if the water leak is down line from them or in the fixture.

Also, there is usually a shut off valve on the inlet pipe to the water heater. This can be used to shut off water to all hot water pipes in the house.

Water Hammer

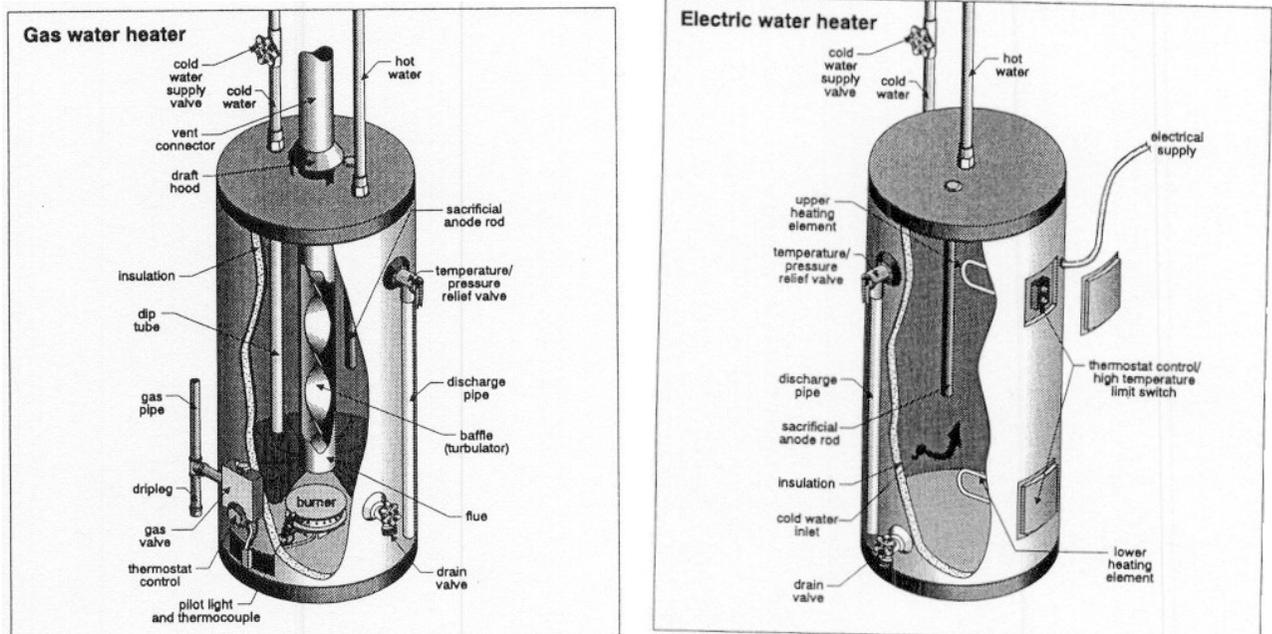
Sometimes we are asked, "Why are my plumbing pipes so noisy?" – The noise they are usually referring to is known as water hammer. Water hammer noise is usually caused when a rapid flow of water is suddenly halted. It happens frequently when a faucet is turned off by hand or by an appliance, such as an automatic washing machine. The way to stop the noise is to install air chambers in the lines, which will act as cushions for the water. Your plumbing system may already have air chambers which have filled with water and all you have to do is, "drain the system to let the air back in, then refill the system with water.

Water Heaters

One thing to be aware of is that if you allow the water level to drop below the heating element with the electricity on, YOU WILL RUIN THE ELEMENT.

Your water heater plays a major role in your life, (if you don't think so, try a cold shower) so we thought we should mention some facts about it. If you need to shut off the water to your water heater always shut off the gas or electricity to it. This is very easy to do; if it is gas, turn the control at the bottom of the water heater to OFF, if it is electric, you can flip the circuit breaker in the main electrical panel, which controls the water heater to the OFF position.

Cross section of a typical gas and electric water heater.



NEVER LEAVE AN INFANT
OR SMALL CHILD ALONE
IN A TUB OR LAVATORY.

Never forget that the water from your water heater to your sink, lavatories, showers and tub faucets is *scalding hot*. Because most homes do not have safety features to prevent accidents, many children are injured in this fashion each year, even though one child may not be able to turn on the faucet another one can.

Your water heater has a valve on top of it that is known as the **T&P** valve, (temperature and pressure relief valve). This safety device should open if the water heater overheats. The **T&P** valve can also be opened to help drain the tank. If it opens by itself, you should turn the water heater off and turn the temperature control down. The **T&P** valve" may or may not reset itself, but if you have any doubts about the safety of the unit you should call a plumber.

Sometimes older water heaters will make popping noises, which is not a cause for concern. It is just a build up of mineral deposits in the bottom of the tank, which acts as a layer of insulation between the flame and the water. Some people recommend you drain your water heater every so often to stop this build up and keep your water heater operating at peak efficiency, however, you should consider these factors first: Let *the water cool off before draining; Refill your heater and heat another tank after draining*. Please note if your drain valve has not been used in a long while, it may leak after you are through. **We Recommend Caution When Draining Water Heaters.**

Waste Water

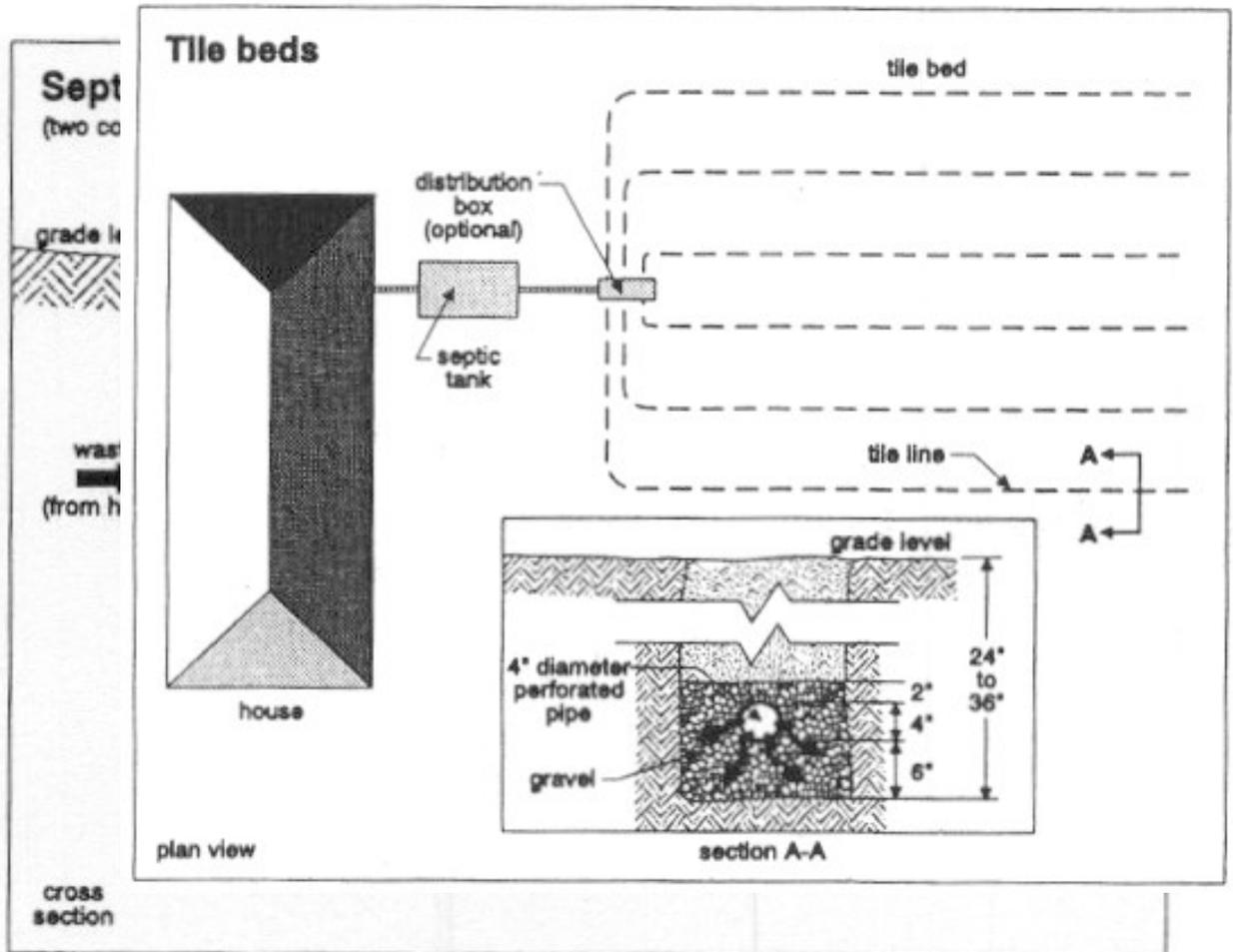
The other main parts of the plumbing system drains wastewater from all home fixtures and also vents sewer gas to the atmosphere. The wastes are collected through house drains and transferred into a large main sewer pipe, where it is carried off into the public sewer system or to a private disposal system by gravity. The main vertical pipes that receive water from sinks and other fixtures are known as waste lines. The pipes that extend upward through the roof are called vent pipes or vent stacks. These pipes are left open at the top to allow air to enter when water is draining out which prevents creating a vacuum. Since they are connected to the sewer line, they do not need a rain cap. There is a water trap in the drain of each fixture (commonly known as a P-Trap because of its shape). The U-shaped bend in the drainpipe is not there to catch items that may be dropped into a sink or tub, although sometimes it does, but it is constantly filled with water to block sewer gases from entering the house.

Septic Systems

If the home you are purchasing has a septic system, we suggest you obtain as much information as possible from the owners before you buy. Find out where the tank and lateral lines are located so that you don't damage them by driving over them with a vehicle and this information will come in handy if you should have any trouble in the future.

Many millions of homes are built in areas where a municipal sewer line is not available. The most practical and the safest alternative to a municipal hookup is a septic tank system. Sometimes people we work for ask if the septic system is adequate for the size of the home we are inspecting, **WE DON'T KNOW**. To obtain the answer, you would need to do a study involving such questions as, how many people will be living in the home, what type of soil the system drains in to, the size of the tank or tanks in the system. Because the system is underground, we can not determine the answers to these questions, we can only say that the system was not inspected. You will need to have a specialist check it out.

A typical septic system consists of a septic tank and soil drain field.



Please be advised that our inspectors can only determine the functional flow of the system. Our inspectors will state that the system was not inspected.

A septic system consists of a subsurface steel or concrete tank, which receives waste from the house, and a subsurface drainage field, which is usually made of perforated pipe imbedded in loose gravel. The tank will need to be pumped from time to time and you should ask the sellers how often they pump it and when it was pumped last. Bear in mind, the pumping schedule for them may not be the same as for you because the number of people in the house may vary. It is important to pump the tank before it backs up; if you wait until you reach the point where the drainage field may be clogged, you may have to rework the drainage field and that can be expensive.

Here are some DON'TS concerning septic systems:

- ✓ Don't cover absorption fields with extra fill.
- ✓ Don't drive cars or heavy equipment over the tank or drain field as you may damage the system
- ✓ Don't plant trees or shrub near the tank or drain field, their roots may clog the system
- ✓ Don't use your sewer system as a garbage disposal
- ✓ Don't waste money on chemical or biological septic aids or cleaners, they could cause failure of the absorption field

Cross Connections

Waste water and supply water should never come in contact with one another. Sometimes they do meet and it can create a life-threatening situation. How can this happen? One way is if you have a swimming pool or spa and use a water hose to add water by dipping the end of the hose into the pool or spa, turning the water on and leaving it for awhile. Now, lets say, there is a fire down the street, a fire truck hooks a large hose to the main water supply and starts pulling three thousand gallons a minute out of your supply. This much suction can pull water out of your pool or spa back into your house supply lines and contaminate your drinking water. An unusual situation, yes, but it has happened.

We recommend back flow preventers on all outside faucets and also we suggest you never put the end of the hose into any pool of water. Another situation where a cross connection occurs is if a home water heater is used for heating the water for a pool/spa.

Winterizing Plumbing



Please do not consider these completely safe methods. Every system is different and water may be trapped in a low place in your system.

The best winter precaution is to have a professional plumber winterize your home by blowing air through the lines.

"Water, water, everywhere, and not a drop to drink!" which is what you may have if you are not prepared for cold weather. Here are a few suggestions that may help you avoid the wet feet and the **"I love/hate my plumber"** syndrome.

Here are some hints to keep the plumber away:

- ◆ At the beginning of winter you should always remove garden water hoses from outside faucets. Leaving the hose on the faucet may cause it to hold water in the faucet allowing it to freeze and rupture.
- ◆ If the faucet is not a frost-proof type, you should wrap it with some type of insulating material.
- ◆ If your laundry facilities are in an unheated garage or utility room, you may want to have a small heater in that area for extra cold nights.
- ◆ Most homes are okay in the winter as long as they are occupied, but if you are planning to take a trip in the winter such as during the Christmas Holidays, you might want to take precautions to prevent your plumbing system from freezing. The simplest way is to leave the furnace on low and open the cabinet doors under sinks. However, if there is a power outage or your furnace fails, your pipes could still freeze. A better way to winterize your home is to drain the system. Here's how:
 - ◆ Begin by turning off the water heater, then turn off the water at the street and loosen the fitting connecting the supply pipe to the water meter.
 - ◆ Connect a water hose to the drain valve on the bottom of your water heater, open all faucets, and open the water heater's T&P valve.
 - ◆ Pour a mixture of water and antifreeze into all P-traps and toilet bowls.

Disposal

Proper operation of a disposal unit consists of running cold water before turning the disposal on and leaving the cold water running at least 20seconds after the unit is turned off.

Never look directly into a disposal while it is running.

Most problems with disposal units happen because they jam or rust builds up inside. If your disposal suddenly stops and emits a low humming sound, a bone, bottle cap or some other hard object has probably been lodged in. it. Removing such objects can be dangerous. If you are not sure what to do, call a plumber. If you have the jam wrench that came with the disposal, turn the power to the disposal OFF first, and then use the wrench to back up the rotor from underneath. If you don't have a wrench, you insert a short broom handle at the top to pry the disposal in the reverse direction until the rotor rotates freely. Use ice tongs or long nose pliers to remove the object. Sometimes you can use ice cubes to loosen hammers that are rusted in place. Once an obstruction is cleared, you may need to press the reset button which can be on the side or bottom of the disposal depending upon which model you have.

If your house is vacant for an extended period of time, pour one or two cups of cooking oil into the disposal. The oil will not evaporate and will help prevent rust. This is also good advice for dishwashers since it will help keep the seal in the bottom of the dishwasher lubricated and prevent drying and leaking seals.

Don't use your garbage disposal for extra hard items or large quantities of items such as chicken skin, cornhusks, or cantaloupe peels. A good splashguard should be kept in place to prevent debris from flying out of the disposal.

Electrical



To most people, electricity is dangerous and mysterious, especially if they don't understand it. Let's consider the average residential electrical system, electricity from your power company is supplied through heavy electrical wires to a meter, then to what is known as a main electrical panel (or breaker box so-called because it contains circuit breakers). Your main electrical panel then divides the electricity into branch circuits to supply different areas and needs of your home.

Main Electrical Panel

There are two things we would like to mention concerning your main electrical panel.

- 1) You should know where it is located in case you need to shut off all electricity in an emergency, or if a breaker trips and you need to reset it.

- 2) Do not obstruct access to our main electrical panel by building shelves or storing items in front of it.

Circuit Breakers

If a switch or outlet quits working, correct problem as soon possible.

- Circuit breakers are safety devices that shut off the electricity if there is trouble in a branch circuit.
- They are designed to protect wires from being overloaded and starting fires.
- They operate on temperature, building up enough heat until a circuit breaker trips.
- If a circuit breaker does trip, you should always let it cool, then flip it all the way off and back on again. Never flip the large breakers (30 amps and above) off and on until you are sure your air conditioning is not on, you could damage the air conditioning compressor if it is running.
- Make sure each breaker is labeled for the area it covers and that the labels are correct.

GFCI'S (Ground Fault Circuit Interrupter)

Another type of circuit breaker that serves as a safety device is a GFCI or Ground Fault Circuit Interrupter, which is designed to protect people when using hand held electrical devices such as hair dryers in the bathroom or electrical tools in the garage and yard.

- ◆ **GFCI's** generally cover the bathrooms, garage and outside area. Whereas circuit breakers and fuses are almost always located in the main electrical panel, GFCI's may be in the main panel or in an electrical outlet.
- ◆ **GFCI's** react much quicker than the older type breakers and are different in appearance than regular outlets, they have a test and reset button between plug receptacles. Your inspector will test any that may be in your home and tell you in the report what areas they cover.
- ◆ **GFCI's** are required on most new construction by electrical code, however, we do not do code inspections because each municipality has slightly different codes.

If your home was built before **GFCI's** were required by code and if your home does not have **GFCI's** you may consider having them installed.

Two Wire Systems

Some older homes have what is known as a two-wire system. An indication of the two-wire system is electrical outlets with only two holes without a third wire for a ground. The main purpose of a ground wire is to provide the ground required by appliances such as washing machines and microwave ovens. Having a two-wire system does not mean that something is broken or malfunctioning, so inspectors do not suggest that ground wires be installed. However, we want you to know that your electrical system will be safer if you have grounded outlets or **GFCI's** installed.

Aluminum Wiring

Some years ago builders used aluminum wiring to save costs since it was about half as expensive as copper wire. It would have been a great substitute if copper and aluminum had the same properties. Studies had been done on the different properties of aluminum and copper residential wiring and some problems did occur. In simple terms, aluminum wiring does not have the memory that copper has. When a piece of aluminum wiring is bent around a screw connection and electricity is sent through the wire, a small amount of heat is created in the wire which tends to cause the wire to straighten out.

The same thing happens to copper wire, except, when the electricity is turned off, the copper wire will relax back into the same position it was in before the electricity was turned on but the aluminum resists this. Eventually the wire may work its way out from under the connection and start arcing, causing a fire. How do you avoid problems with aluminum wiring? There are two things to keep in mind if you have aluminum wiring.

If you replace a switch, outlet or fixture, buy one designed for use with aluminum wiring. Fixtures labeled for aluminum wiring are designed to hold the wire better. Your inspection report will state whether your home has aluminum wiring or not.

Electrical Safety

- ◆ Never remove the ground probe from a three-pronged plug.
- ◆ Never stick anything into a receptacle other than a plug.
- ◆ Use child protector devices to cover unused receptacles.
- ◆ Never crawl under a house if there are wires on the ground without first shutting off the electricity.
- ◆ If you have any problems with your electrical wiring, be safe, call an electrician.

Fire Safety

If you have small children in your home, make sure one window in each child's bedroom is easily opened. Children have a tendency to try and open windows instead of breaking them to escape fire.

Have a plan in case of fire, which includes a meeting place in front of the house to be sure everyone is out of the house. We recommend that each home have at least one fire extinguisher.

Smoke Detectors

We strongly recommend smoke detectors. Preferably the type wired into your electrical system, with a battery-operated detector as backup.

Smoke detectors should be installed in each sleeping room, outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional livable story of the dwelling. In dwellings or dwelling units with split levels, a smoke detector need be installed only on the upper level, provided the lower level is less than one full story below the upper level, except that if there is a door between levels, then a detector is required on each level. All smoke detectors should be interconnected so that when one smoke detector activates, all smoke detectors will be audible.

Fireplace

Fireplaces can add cozy warmth to a home and can be safe if the proper precautions are taken. Before lighting your fireplace, always make sure the damper is open and there is no cover on top of your chimney. Covers are sometimes left by a previous owner. If you have a gas starter, use a low flame setting at the start.

Be especially careful when burning artificial logs, be sure to light them properly, using only one at a time. Lighting them all over and using more than one log creates extreme heat causing them to burn too quickly. If you have a metal fireplace, it may warp or force the seams to break open, allowing the fire to burn into the wall.

One safety feature we encourage is glass doors or a screen to insure that hot cinders do not pop onto the floor. If your fireplace has glass doors added to a metal insert, make sure that the fireplace manufacturer approves them for use on that type of fireplace. If you already have gas logs in your fireplace, be sure the damper is open when using them since the fumes need to be vented.

Fireplace owners should also make sure their chimneys are free of creosote deposits before lighting a fire. Even small deposits should be removed; they are an indication of more deposits on the smoke shelf where most chimney fires start. Chimney fires can lift burning creosote out of the chimney and onto the roof possibly spreading the fire to the rest of the house and even neighboring homes.

Fireplace Tips

Be especially careful when burning artificial logs, be sure to light them properly, using only one at a time.

We recommend that the glass doors be opened slightly during use on a metal flue fireplace to help prevent overheating of the firebox, which could cause damage to the firebox.

- ◆ Removing ashes will be easier if you dampen the top layer with water using a plastic bottle with a spray nozzle.
- ◆ Place wet newspapers over the trashcan or other container and simply lift up a corner as you deposit the ashes inside. The method helps contain the dust.
- ◆ For an ash free fireplace, you may wish to install gas logs which can be easily installed if you have a gas starter.

Do not carry extra firewood into your home for storage, it may contain boring beetles and the heat inside may cause them to develop and emerge inside your home, which can become infested. Some types of wood boring beetles and Formosan termites can only be eradicated by fumigation, which is very expensive.

We suggest that you do not stack firewood directly against your house. It is an invitation to insects to enter your home as well as being a fire hazard.

Last but not least, remember to keep the damper closed when the fireplace is not in use preventing loss of heating and cooling energy and keeping out birds. We strongly recommend a chimney cap, which will keep birds and animals out of your chimney and help to prevent premature deterioration of the chimney and firebox by stopping rainwater from entering your chimney.

Burglars

Some tips from burglars:

They love lights in the kitchen; it's like a beacon saying no one is home.

They hate loud stereos because someone can be sleeping in the house when they ring the doorbell to make sure no one is home and not hear it. One professional said he would just go to another house if there were a loud stereo playing.

Some tips from us:

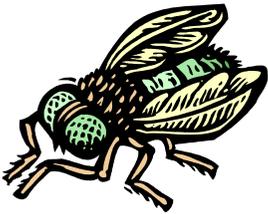
- ◆ Never hide a key to your home near the front door.
- ◆ Doors that have glass in them or near them should have the type of dead bolt lock that uses a key on both the inside and outside to lock and unlock it. This will help prevent a burglar from using the doors in the event they do break in and it will make it harder for them to gain entry into your home.

To help you protect your home, ask yourself these questions:

- ◆ Are all exterior doors equipped with quality dead bolt locks?
- ◆ Do sliding glass doors have pins to prevent them from being lifted upward and removed?
- ◆ Are entryways well lighted at night?

Pest Control

Tips to help in the war against bugs:



- ◆ Do not save brown paper bags and do not store items in cardboard boxes. They are a home for roaches and may contain egg capsules especially if they are from grocery stores.
- ◆ Place dry pet food into plastic containers with lids to help eliminate an attractive food supply for ants, roaches and other pests.

Many people do not understand why their efforts fail to rid their home of pests. The reasons are many and varied. Three of the main reasons are, not using the right "stuff" at the right time and in the right place. If it were as easy as the TV ads would have you believe all pests would have been eliminated a long time ago. Pest control companies know the right "stuff" to use, know when and where to use it.

We recommend regular pest control service because this is the only way to keep a pest population from building up in your home

We can provide this service and would appreciate your business. As a bonus, if you are one of our regular general pest customers, we will do yearly termite inspections free and furnish a certificate, should you decide to refinance or sell your home.

Practical Sting: Remedies

The next time you go camping or to any location frequented by bees, take along a small container of ordinary meat tenderizer. Dr. Richard Martinez, clinical director of the Stanford University Hospital emergency department, advises that meat tenderizer substantially relieves the pain caused by stings from bees and wasps. "Just mix the tenderizer with water", he says, "and put the paste on the painful spot. In most cases you'll get quick relief."

However, if you are allergic to insect or similar venom, you should know that you could go into anaphylactic shock, a life threatening condition. If you have that special sensitivity, Dr. Martinez recommends that you take with you on summer outing, a sting kit that contains adrenaline and an antihistamine, which can buy time until you get to a doctor.

There are two sources of unhappiness in life,
One is not getting what you want ...
The other ... is getting it!

Landscaping

Everyone places a different amount of importance on landscaping and lawn care.

Landscaping around your home can help or hurt it, depending on whether or not it is done properly.

Bushes and trees drink a larger amount of water than grass and need to be watered more often. When you look at your landscaping, you need to make sure water is allowed to drain away from your home properly. As you read under FOUNDATIONS, too much water can also cause foundation problems and could also cause your house to be flooded if not properly done. You should never place dirt any closer than two inches below the brick line. Dirt that is too close to the bottom of the bricks may allow water to enter your home. It also allows insects, especially termites, to take advantage of the easy access into your home and you will not even be able to see their tubing. Quite often built-up flowerbeds will cause this situation. If you have built-up flowerbeds, you should consider removing them or adjusting the level of the dirt to keep it below the brick line.

Here are several items to keep in mind when mowing your lawn:

- ☛ Don't cut wet grass, it causes uneven mowing and messy clippings which can mat and block light from the grass. And, there is also the danger of slipping on wet slopes.

- ☛ Vary mowing patterns. Mowing the same direction every time tends to compact the soil and causes wear patterns.
- ☛ Check the blade height by measuring the grass after cutting. St. Augustine grass should be mowed to a height of two to three inches and Bermuda to a height of about one to one and a half inches.
- ☛ We encourage you not to bag your grass, it will rob your lawn of nutrients and it is also filling our landfills needlessly. If you do not bag your grass, you need to mow at least once a week.
- ☛ Remember sharp turns with a mower can cause uneven cutting, make wide turns or take advantage of sidewalks and driveways, but be aware of rocks or debris on pavement areas.
- ☛ If the ground is uneven in some areas because the soil has settled be careful not to scalp the high spots.

Watering

A method you can use to check your yard to see if it needs watering is to take a screwdriver and stick it into the ground. It should go down six inches easily, if it doesn't, then you need water. Another method some use is to place containers in various places around the yard. Use this method to see if these areas are receiving the proper amount of water from the sprinkler. One thing you need to keep in mind when watering your yard is not to water every day; this causes your grass to develop a shallow root system and it will die off quicker if the watering should stop for some reason. Try watering every second or third day for a deeper and healthier root system.

Fertilizer

People accept the fact that they must mow and water to maintain the health of their lawn. Some may question the need for fertilizer and they shouldn't. Lawn grasses live in an unnatural environment, crowding the grass plants together making them compete with one another along with neighboring trees and shrubs for water and nutrients. The grass is mowed regularly, which is highly irregular in nature, and their clippings, a source of nutrients are often removed. Because of this competition and the unnatural demands placed on lawns, they need fertilizer for sustenance. When properly fertilized a lawn will maintain good color density and vigor and does not easily succumb to insects, weeds or diseases. When under-fertilized, the lawn is not only less attractive but also is considerably more susceptible to environmental stress and damage. It takes experience and time to care for your yard properly, so if you don't have the time or experience, it is well worthwhile to have professionals take care of it for you.

Miscellaneous Safety Concerns

Safety Glass

Safety glass should be installed in the following locations:

- Sliding panels of patio and swinging doors,
- In doors and enclosures for the tubs, whirlpools, saunas, steam rooms, bathtubs and showers.
- Any window that is less than 60 inches above any bathtub,
- In any window where the pane has a surface area greater than 9 square feet and the bottom edge is less than 18 inches off of the floor,
- Any window that is within 24 inches of an exterior door and more than 9 square feet of surface area,
- All glass inserts in any form of railing, regardless of dimensions, and
- Any windows at the base of a stairway or landing.

Thank you for Your Business

Value Home Inspections, Inc.

(800)750-8090

or

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