

# **HOMEOWNER WARRANTY REFERENCE GUIDE**



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## A BASIC GUIDE FOR NEW HOME BUYERS

# What is Happening to My New House?

Many owners of new homes are horrified to see cracks in their newly-decorated walls, and ugly nail heads poking through the carefully-finished drywall. There may even be a crack appearing between the wall and the ceiling in the hallway. Their new home looks as though it is falling apart before their startled eyes. Should they angrily call their builder? Or perhaps their Lawyer? Probably neither. Let us look at the situation in detail.

### Shrinkage Cracks

First, when "dry" lumber is purchased from the lumber dealer, by Federal standard it has an average moisture content of 19%. After lumber in the house has gone through one heating season in this area, the average moisture content is 9%. In the process of losing 10% of its weight in water, the wood shrinks. A typical floor joist is a 2x10, which is 9 1/4" high at the time of installation at 19% moisture content. After it dries to 9% moisture, it has shrunk to about 8 7/8" high. The entire house settles the 3/8". However, the floor joist is supported at one end on the concrete foundation and at the other end rests in a center girder, which is made up of (4) 2x10's nailed together, which also shrinks 3/8". Therefore, the entire house settles toward the center during the first winter. In the process, diagonal cracks often appear in the drywall at the corners of doors in the interior partitions.

One of the reasons the builder gives a one-year warranty with the house is so that these cracks caused by the lumber shrinkage can be repaired after the heating season. In some cases, the center girder will have to be raised slightly and reshimmed on the tops of the piers or posts to make the door openings in the cross partitions square again and to close the cracks. This lumber shrinkage is not the builder's fault, and there is nothing he can do about it except make the repairs at the end of the heating season. Likewise, it is useless to make the repairs as the cracks appear, since the lumber may not be through shrinking yet.

### Screw or Nail Pops

Another thing that may appear as the result of lumber shrinkage is screw or nail pops, where the head of a drywall screw or nail pushes the finishing compound loose and "pops" out of the wall. In this case, the point of the screw or nail stays exactly where it was driven into the wood, but the wood shrinks, leaving a small space between the drywall and the face of the framing member. If any pressure is applied to the wall finish, the drywall slides down the shank of the screw or nail, causing the screw or nail head to protrude, popping off the finishing compound. The solution is to use a punch or screw driver to drive the screw or nail deeper, then apply new finishing compound, sand, and repaint. Screw or nail popping will appear most often near the corner of a wall or ceiling.

### Truss Rise

A third problem, which is somewhat related, is that of truss rise. Most roof framing is composed of trusses, which are complete triangular frames that extend from wall to wall. In

an effort to control energy costs, insulation is used to cover the ceiling, and it is usually deep enough to completely cover the bottom member of the truss. Since it is buried in insulation, the bottom member is warmer than the upper members during the winter; it dries more, causing it to shrink. Because of the geometry of the truss, the bottom member is pulled upward, causing it to lift the ceiling off the interior partitions, particularly near center wall. During the summer, it will usually return to its original position.

In most cases, this truss rise happens only once, the first winter. However, in about one case in five, it happens each year. It depends upon where in the log the bottom truss member was cut. If the problem happens just once, repair of the drywall tape at the joint between the wall and the ceiling is all that is required. If the problem reappears, the only practical solution is to use a molding to cover the joint. The molding is fastened only to the ceiling and moves up and down on the wall, covering the crack. The problem is not structural, and indicates the presence of extra-heavy insulation in the ceiling. This problem is likewise beyond the control of the builder, but he should be responsible for repair of the joint after heating season and for installing the molding if that is necessary.

### Moisture Condensation in the New House

At the beginning of the first cold weather in the fall, the new homeowners are likely to be greeted with moisture condensing on the windows, and running down onto the sash and sill. The carefully applied finish is in danger! The humidity is too high. What can they do? Ventilate!

It may be difficult to open a window in cold weather when you have paid a premium for a well-insulated, tight house, but it is necessary. The building materials are drying, and the moisture has to go somewhere. The lumber is losing about 10% of its total weight in water. There is excess moisture in the concrete work, and in the interior finish materials, particularly plaster and drywall taping compounds. The building materials may release as much as a ton of water during that first heating season, and additional ventilation may be needed to dissipate the moisture. It may be necessary to open the window a crack to help reduce the humidity in your home. A moisture problem during the first winter may well be a temporary one, do not take drastic measures to ventilate the house, such as installing an air-to-air heat exchanger, unless the moisture problem reappears the second winter.





## Condensation

A possible cause of moisture problems is a wet basement or crawl space. A crawl space **MUST** have a plastic ground cover installed over the soil surface to control moisture evaporation. Standing water in the crawl space, whether above or below the plastic, is a matter for concern. Settling of the backfill around the foundation during or after construction may have directed water from the yard or roof against the foundation, causing flooding of the basement or crawl space. Visible water should be pumped out, and the necessary regrading done. If there is a continuing problem with water in the crawl space, it may be necessary to install a perimeter tile leading to a sump and pump to drain it. The plastic should extend over the tile and sump.

## Wet Basements and Crawl Spaces

Water in the basement or crawl space? It probably came from the roof! Improper disposal of the roof runoff is the most prevalent cause of water problems in the house.

If the house is not equipped with gutters and downspouts, the force of the water dripping from the roof edge onto the ground will dig a shallow ditch at the drip line. This ditch will keep the water near the house, where it can soak down and through the foundation. If the house cannot be equipped with gutters, it is essential that the ground slope away from the house on all sides, and that the surface of the soil be protected from erosion by some form of landscaping. Landscaping rock works well for the purpose, as long as the homeowner remembers that as far as drainage is concerned, the gravel is not there. The drainage slope must be maintained beneath the gravel. Gravel in a trench around the house merely forms a moat, with the roof water to fill it.

Installing gutters is only the first step in roof water control. The discharge from the downspouts must be directed away from the foundation, preferably at least five feet away. While downspout extensions are a nuisance when mowing the lawn,

they are essential to keeping the basement or crawl space dry. On many older houses, the downspouts extended into underground tiles that discharged into either cisterns or to a storm sewer. Most of these drain lines were made of clay tile, and many have broken underground, usually at the elbow just below the downspout. A break here directs all of the water from the downspout against the foundation under the ground. This is responsible for many of the leaks in the corners of basements.

Maintenance of gutters is necessary, too. A sagging or blocked gutter is worse than none at all, because it overflows in one place rather than all along the roof edge, and at a point that is not prepared for the overflow. In areas with many mature trees, where gutter blockage by leaves is common, perhaps it is best to leave the gutters off and allow the roof runoff to drip into a plastic-lined gravel bed a foot or so deep, with a perforated drain tile in the bottom to carry the water away.

## Grading and Drainage

Many houses experience problems with water or moisture problems in the crawl space or basement. Most of these problems are the result of improper grading around the house. Ideally, the bottom of wood, metal, or vinyl siding should be at least six inches above the soil level around the house. In the case of brick veneer, the dirt should be at least six inches below the sill plate of the floor framing. This distance is necessary to avoid damage to the siding, sill, and joists from water splashing up from the soil or landscaping material. Even though the interior floor framing is protected by brick veneer, enough moisture will penetrate the brick to cause rotting of the sill and floor joists if the ground level is above the sill plate. Unfortunately, few builders set their houses that high above grade, primarily for the sake of appearance.

A second requirement is that there should be a slope of about four inches away from the house in the first six feet. When this slope is present and the grading level is as specified above, water and moisture problems are rare.

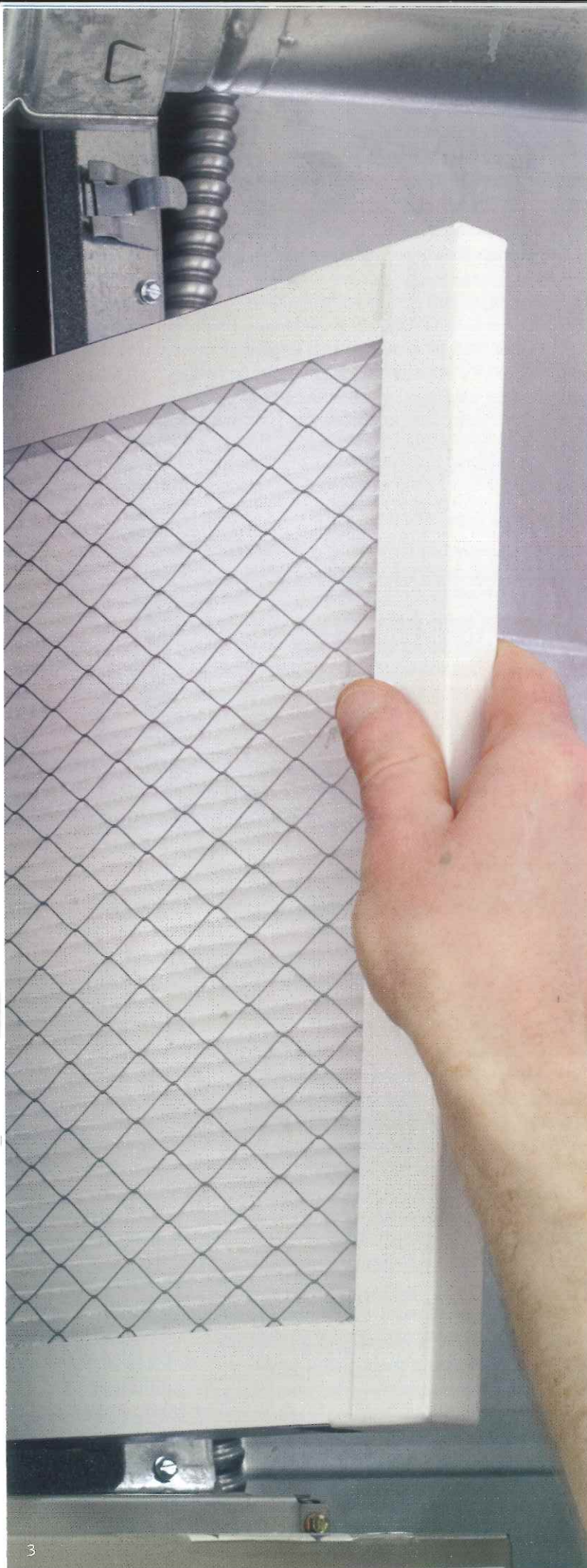
The owner of a new house should be aware that even if the builder does the grading properly, some settlement will occur during the first and second years of occupancy. It may well be necessary to add another truckload of dirt around the house to compensate for the settlement of the backfill around the foundation. This is often ignored, because the proud owner has installed landscaping that will have to be revised or replanted when the soil is added to maintain the original slope. Many homes more than 50 years old still have a "moat" around them because the settlement of the backfill was never refilled. That is probably the second most prevalent cause of wet basements in older houses.

## Heating and Cooling Systems

### How Often Should I Change the Filters?

Depending upon the design of the filter, it may remove mostly large particles—"dust mites" and pet hair. Others will remove particles as small as fungi and bacteria. The American Society of Heating, Refrigeration, and Air Conditioning Engineers have devised a rating system for filters (ASHRAE 52-1). The MERV





(Minimum Efficiency Reporting Value) shown on the packaging of most filters is based on their ability to capture particles larger than one micron (a unit of measure slightly less than 1/25,000 of an inch). This rating system is designed to represent, with a single number, the performance of the filter over a large range of particle sizes. These values range from 1 to 12, with the higher number capturing more of the dust.

A second rating system, Filter Performance Rating (FPR), is primarily used by the 3M Company, a major manufacturer of filters. It is based on the ability of the filter to capture particles from 0.3 to 1.0 microns. These sub-micron particles are the ones most likely to be inhaled, where they can cause problems in the lungs. The rating of filters in this system range from 300-1600. In general, the cost of the filter increases as the efficiency increases.

#### **Particles Size in Microns**

Human hair	3-200
Pollens	10-100
Dust Mite Remains	10-60
Pet Dander	0.2 - 100
Plant Spores	10-70
Fungi	0.5 - 5
Bacteria	0.3 - 3
Tobacco Smoke	0.0003 - 0.04
Viruses	0.002 - 0.005

Filters are rated when they are new. As they accumulate particles, the spaces between fibers in the filter become smaller, allowing them to trap progressively smaller particles. Filters have been compared to cheese—the older it gets, the better it gets, until it gets so good you have to throw it away. I have found fiberglass filters, which are among the least efficient, plugged with dirt so solidly the system shuts down because it could not pull enough air through the filter to keep the furnace from overheating. In one case, the suction from the furnace fan against the filter was so strong the cardboard frame buckled and the filter was sucked into the ductwork, which had to be taken apart to remove it.

In general, filters should be changed at least every three months. Some types of filters may need replacement more frequently. Factors which affect filter life include:

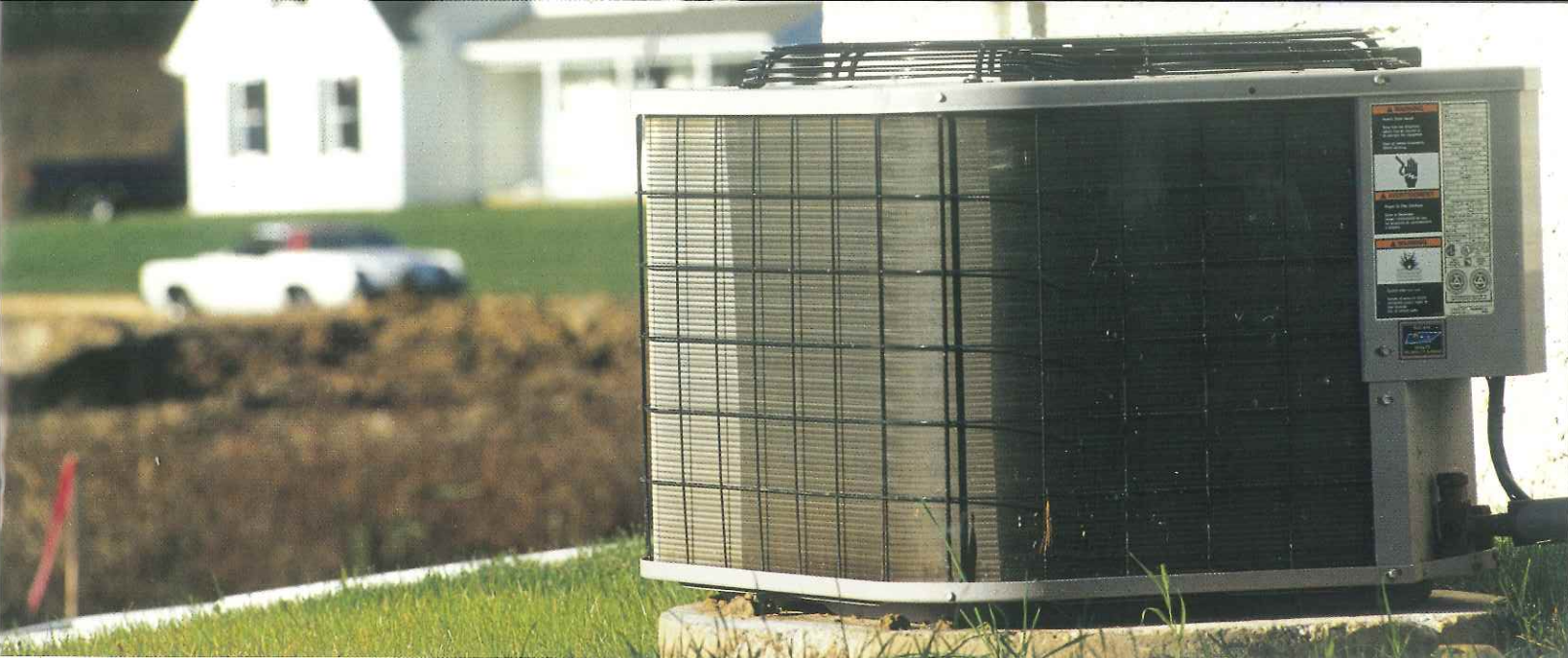
- Dirty duct work
- Construction in the house
- Number of house pets
- Sanding projects
- Presence of smokers
- Continuous fan operation

The filter should be checked monthly until the appropriate interval has been established for your house and lifestyle. It is best to use the same type filters that the contractor installed originally since some types of filters may restrict the air flow.

### **Outdoor Air Conditioning Condenser Units**

Outdoor air-conditioning condenser units should be always be kept free of any obstacles that can restrict air flow and maintenance access like landscape shrubbery, trees or fencing.





It is recommended to stay a minimum of 30" from units with any plants, trees or fences. Maintain any plants or trees annually to prevent interference.

In addition when working around the condensing unit with a garden hose, it is recommended for cleaning purposes you can gently spray the condensing unit at a 45 degree angle pushing dirt from top to the bottom while unit is in the off position. This will help with keeping the unit running at peak performance.

## Electrical Tips To Help You Understand Your New Home

### Receptacles

Your home is equipped with "tamper proof" receptacles. These receptacles are designed to prevent someone from inserting something other than a plug into a receptacle. Each opening of the receptacle has a shutter. If one shutter senses more pressure than the others, the shutters will not open. Try to insert the plug straight into the receptacle, do not force. Gentle even pressure will open the shutters. It will also get easier the more the outlets are used.

Another type of receptacle you will typically find in the bathroom, kitchen and exterior of your home is a GFCI. This type of outlet is found in areas where moisture is present. This outlet is designed to trip when the moisture levels in these areas exceeds normal levels. Please keep in mind that there can be additional receptacles that are on the circuit with the GFCI receptacle. In the event you are trying to use a receptacle in these areas and it is not working you should check the GFCI receptacle to see if it has tripped. Follow the procedure listed below to test and reset the receptacle.

To test GFCI receptacles, press the "Test" Button", you may hear a click, try testing the receptacle, you should have no power. Press the reset button, you may hear a click, test the outlet, you should have power. If not consult a technician.

### Breakers

For a tripping breaker, first push the breaker to the off position to reset it, then push to the on position. Check for power, if you still do not have power turn off as many items (i.e.: lights, appliances, chargers, and unplug electrical devices) on the circuit as possible. Reset the breaker again and check for power. If you have power, turn on lights and plug devices back into receptacles, if power goes out again as you are reenergizing it is likely that the last item you plugged in or turned on is the problem.

### Smoke Detectors and CO2 Detectors

Please change the batteries once a year either when you reset your clocks in the spring or fall. At that time you can also clean the detectors. Take a vacuum hose and suck all around the detector. If your vacuum also has the ability to blow air you can then blow air all around the detector. This will help allow the detectors to function more properly.







## Vinyl Siding

### Cleaning

How do I wash vinyl siding?

Wash vinyl siding with a soft cloth or ordinary long-handled, soft bristle brush. For textured surfaces, use only a soft bristle brush to keep the grooves in the texture stain-free. For best results, start at the bottom of the house and work up and rinse the cleaning solution completely before it dries. If your house has brick facing, cover the brick so that is not affected by the runoff.

Can I use a power washer?

Yes, though you should read the washer instructions carefully before use. When cleaning, hold the power washer straight at eyelevel to keep the water on top of the siding where it can clean most effectively. Do not aim the power washer upward as water may collect behind the siding.

How do I remove mold and mildew?

Small spots of mold and mildew can be handled with cleaners such as Fantastik or Windex. For larger sections, a solution of vinegar (30%) and water (70%) has proven successful. Alternatively, you also could try the following solution:  $\frac{1}{3}$  cup ( $2\frac{2}{3}$  ounces) powdered laundry detergent (e.g., Tide, Fab, or equivalent),  $\frac{2}{3}$  cup ( $5\frac{1}{3}$  ounces) powdered household cleaner (e.g., Spic & Span, Soilax, or equivalent), 1 quart (32 fluid ounces) liquid laundry bleach, and 1 gallon (128 fluid ounces) of water.

What types of cleaners should I use for other stains?

A list of commonly accepted cleaners is provided in the box to the right. Be sure to spot check any general or stain specific cleaner before using it on a large section of siding. After removing the stain, rinse thoroughly with water. Do not use cleaners containing organic solvents, undiluted chlorine bleach, liquid grease remover, nail polish remover, or furniture polish or cleaners. They can affect the surface of the siding.

### Vinyl Siding Cleaners

General cleaners (e.g., Simple Green, Nice & Easy, Armor All, etc.) can be used to clean dirt, bird droppings, and spider webs. Stain-specific cleaners are listed below. Rinse all cleaners with water before they dry.

Stain	Cleaners*
Bubble Gum	Fantastik, Murphy Oil Soap, solution of vinegar (30%), water (70%), and Windex
Crayon	Lestoil
DAP (oil based caulk)	Fantastik
Felt-tip pen	Fantastik, water-based cleaners
Grass	Fantastik, Lysol, Murphy Oil Soap, Windex
Lithium (car) Grease	Fantastik, Lestoil, Murphy Oil Soap, Windex
Motor Oil	Fantastik, Lysol, Murphy Oil Soap, Windex
Paint	Brillo Pad, Soft Scrub
Rust	Fantastik, Murphy Oil Soap, Windex
Tar	Soft Scrub
Top Soil	Fantastik, Lestoil, Murphy Oil Soap

*\*Cleaning materials are listed in alphabetical order. \*SPI nor VSI do not endorse products or processes and makes no warranties for the products referenced herein. Reference to proprietary names is for illustrative purposes only and is not intended to imply that there are not equally effective alternatives.*



## Septic System Sand Mound (When Applicable)

We would like to provide you as our customer a brief description of your onsite sewage system.

### What is a septic system? How do I maintain one?

A septic system is a highly efficient, self-contained, underground wastewater treatment system. Because septic systems treat and dispose of household wastewater onsite, they are often more economical than centralized sewer systems in rural areas where lot sizes are larger and houses are spaced widely apart. Septic systems are also simple in design, which make them generally less expensive to install and maintain. And by using natural processes to treat the wastewater onsite, usually in a homeowner's backyard, septic systems don't require the installation of miles of sewer lines, making them less disruptive to the environment.

A septic system consists of two main parts—a septic tank and a drainfield. The septic tank is a watertight box, usually made of concrete or fiberglass, with an inlet and outlet pipe. Wastewater flows from the home to the septic tank through the sewer pipe. The septic tank treats the wastewater naturally by holding it in the tank long enough for solids and liquids to separate. The wastewater forms three layers inside the tank. Solids lighter than water (such as greases and oils) float to the top forming a layer of scum. Solids heavier than water settle at the bottom of the tank forming a layer of sludge. This leaves a middle layer of partially clarified wastewater.

The layers of sludge and scum remain in the septic tank where bacteria found naturally in the wastewater work to break the solids down. The sludge and scum that cannot be broken down are retained in the tank until the tank is pumped. The layer of clarified liquid flows from the septic tank to the drainfield or to a distribution device, which helps to uniformly distribute the wastewater in the drainfield. A standard drainfield (also known as a leachfield, disposal field, or a soil absorption system) is a series of trenches or a bed lined with gravel or coarse sand and buried one to three feet below the ground surface.

Perforated pipes or drain tiles run through the trenches to distribute the wastewater. The drainfield treats the wastewater

by allowing it to slowly trickle from the pipes out into the gravel and down through the soil. The gravel and soil act as biological filters.

### Septic System Maintenance

If you own a septic system, it is important that it be properly maintained. How often you need to pump the solids out of your septic tank depends on three major factors:

- The number people in your household;
- The amount of wastewater generated (based on the number of people in the household and the amount of water used); and,
- The volume of solids in the wastewater (e.g., using a garbage disposal will increase the amount of solids).

Although your septic tank absorption field generally does not require maintenance, you should adhere to the following rules to protect and prolong its functional life:

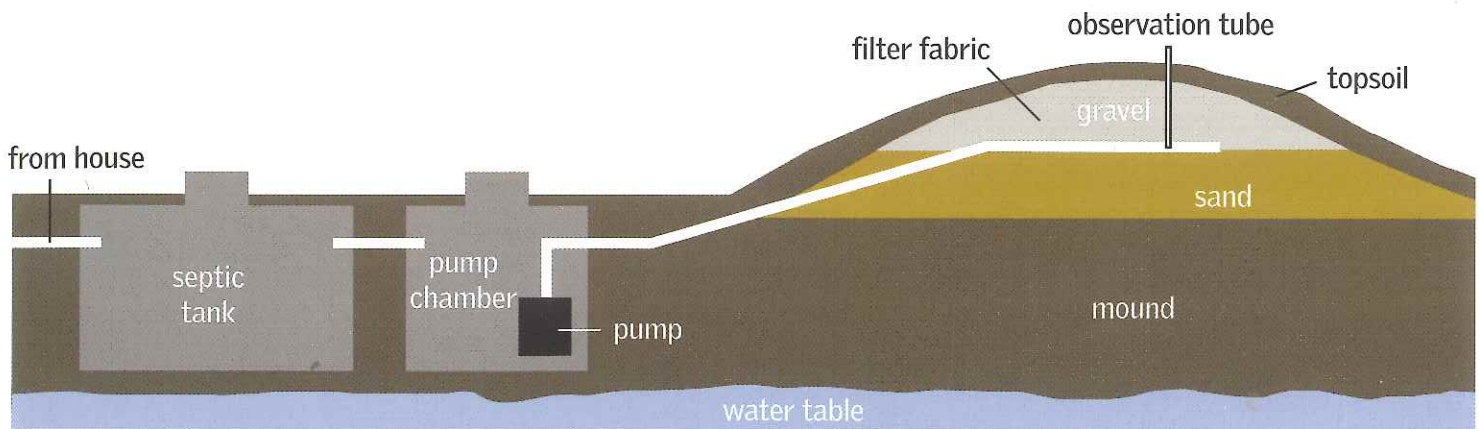
- Do not drive over the absorption field with cars, trucks, or heavy equipment.
- Do not plant trees or shrubbery in the absorption field area, because the roots can get into the lines and plug them.
- Do not cover the absorption field with hard surfaces, such as concrete or asphalt. Grass is the best cover, because it will help prevent erosion and help remove excess water.
- Do divert surface runoff water from roofs, patios, driveways, and other areas away from the absorption field.

### Don't Flush It

Homeowners wanting to take good care of their septic systems should make note of the following items that should never be flushed down the drain or toilet. These items can overtax or destroy the biological digestion taking place within the system or clog pumps and pipes.

### Take care not to flush the following:

Hair combings, coffee grounds, dental floss, disposable diapers, or kitty litter, sanitary napkins, tampons, cigarette butts, or condoms, gauze bandages, fat, grease, or oil, paper towels, and NEVER flush chemicals that could contaminate surface and groundwater, such as: paints, varnishes, thinners, waste oils, photographic solutions, or pesticides.



## Homeowner Maintenance CHECK LIST

	Monthly	Quarterly	6 Months	Over 6 Months/ Seasonal	Yearly
Air Filters	X				
Range Hood Filters (non charcoal)	X				
Run water in sinks and toilets not used frequently	X				
Check exterior drainage to ensure no standing water for more than 24 hours		X			
Test GFCI and AFCI Breakers		X			
Check and clean vents for range hood, microwave and dryer		X			
Check all areas with caulk on exterior and interior and re-seal as required				X	
Inspect heating and AC system per manufacturers specifications				X	
Inspect windows and door seals			X		
Inspect kitchen and bath wet areas			X		
Check around all penetrations in siding			X		
Interior settling or shrinkage cracks in drywall			X		
If basement has a sump pump, make sure it's operating correctly			X		
Make sure gutters are free of any materials that could prevent free flow or water			X		
Drain and refill hot water heater if you have extremely hard water					X
Inspect and test hot water safety valve					X
Inspect or have tested, fire extinguishers					X
Clean faucet aerators					X
Check and lubricate garage door track					X
Change garage door security code					X
Disconnect all exterior hoses for exterior faucet during cold temperatures					X
Clean sediment out of shower head screens					X
Clean refrigerator coils					X
Check all washer hoses					X