15 WAYS TO SAVE YOURSELF $10,000+ ON HOME FOUNDATION REPAIR

PROTECT YOUR HOME, ADD VALUE, & PREVENT DAMAGE WITH THESE FOUNDATION MAINTENANCE TIPS

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BASED ON RESEARCH PRESENTED BY W. TOM WITHERSPOON, P.E.

INTRODUCTION

$12.5 Billion Dollars a Year

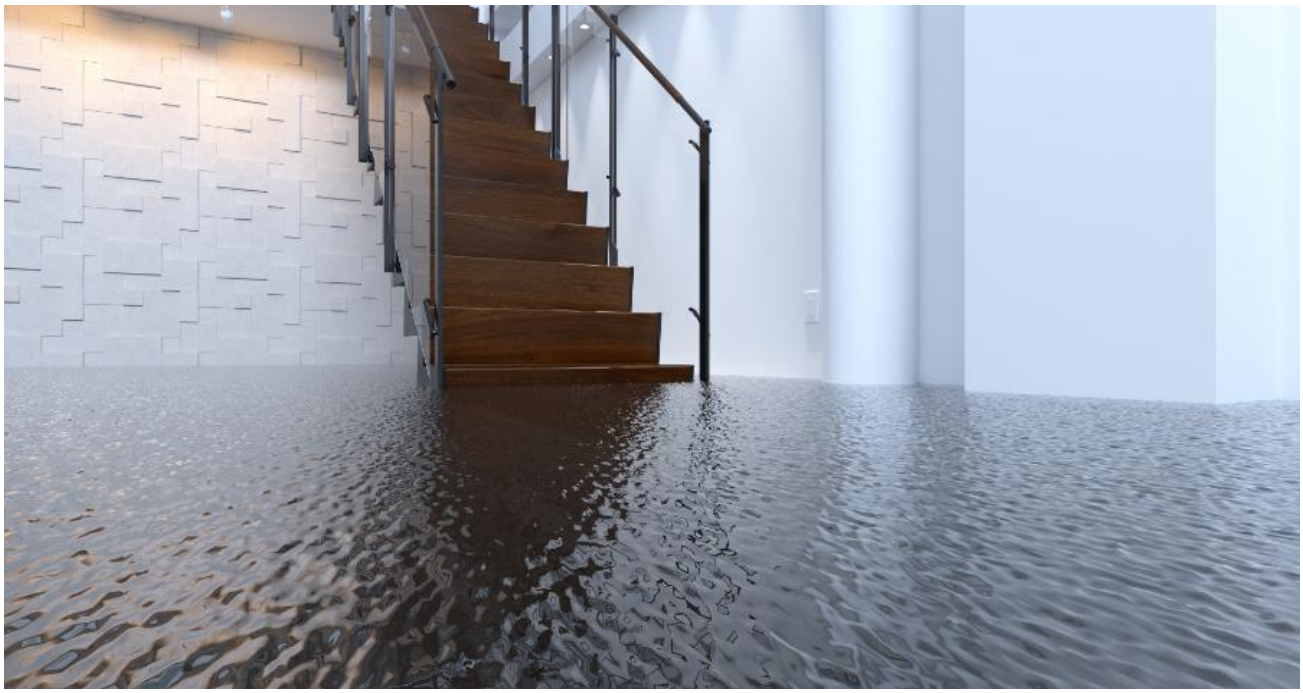
That's how much a study of failed foundations (ADSC 2000) estimated the cost of repair to American consumers annually.

The most common cause? Poor maintenance.

In order for a house to function as intended and provide safe, dry shelter, there is a need for some preventative maintenance on the part of homeowner's to help reduce movement.

By regularly making foundation maintenance a part of your homeowner routine, you can stand to save yourself tens of thousands of dollars in repair.

In this guide are 15 common problem areas that plague homeowners and the steps you can take to minimize distress in your home's foundation and the structure it supports. These recommendations are perfect for both new construction homes, newly repaired homes, and general home maintenance.



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01 SLOPE MAINTENANCE

THE PROBLEM:

The primary function of good drainage is to prevent ponding or intrusion of water near or under the home, which would increase seasonal moisture fluctuations and expansive soils. Under ideal conditions the slab will maintain its original position; unfortunately, many slabs are poured on drier-than-normal soil that later becomes wet from capillary rise of water from below, causing the thin floors to lift.

TO DO:

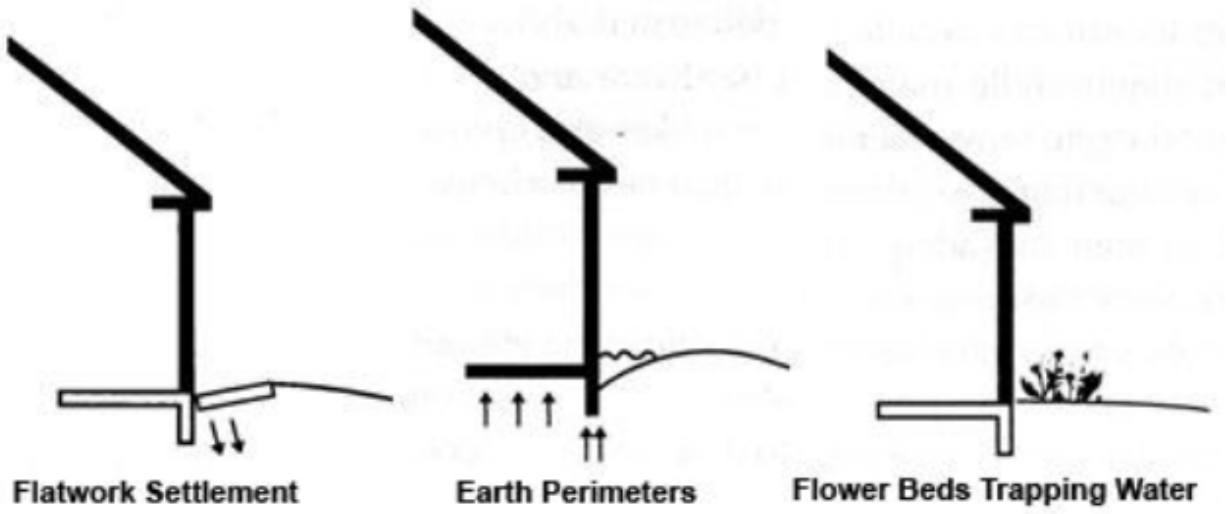
To prevent slope failures and other damage, keep all drainage devices and systems clear. When inspecting the drainage system on your property, keep the following items in mind:

- Make sure all slopes drain properly and drains are cleared of any debris. The minimum slope requirement should be 5% for the first 5' away from the foundation (3" of drop) and then at a minimum discharge slope of 1% (approximately 1/8" drop for every foot of distance) from that point on. Some type of ground cover is recommended, however, to reduce erosion and lower the frequency of slope maintenance work.
- Check drains along retaining walls, removing overgrown landscaping if necessary.
- Additional soil should be added as necessary to maintain a positive slope away from the foundation. This soil should always be clay, not sand, so moisture can be better maintained and water will run off instead of soaking in spotty high concentrations.
- Maintaining a positive slope in the backfill area or “earth perimeter” next to the house is the most critical aspect of slope maintenance. During the first few months or years following new home construction or large foundation repairs, this material often settles. In many cases settlement is severe enough to reverse or flatten the slope next to the foundation. Reverse or negative drainage will cause ponding of water during precipitation or heavy irrigation. To avoid this, the homeowner should periodically compact the backfill area by tamping with a heavy piece of wood such as a 4 "x4.”

02 FLAT WORK

THE PROBLEM:

Flat work (sidewalks and patios that are not part of the foundation) adjacent to foundations can signal water intrusion. Settlement is greater along the house, and a negative slope may occur that will allow ponding. This deeper saturation will oftentimes cause damage to the foundation and/or basement floors, and because evaporation is limited by the flat work, the ponded water may dramatically increase moisture levels at the crucial perimeter beams and/or piers, tilting the flat work.



Flatwork Settlement | Earth Perimeters | Flower Beds Trapping Water

TO DO:

Every homeowner should conduct a yearly inspection of concrete flat work and do any maintenance necessary to improve drainage and minimize infiltration of water from rain, snow melt and lawn watering. This is especially important during the first five years for a newly built

03 FLOWER BEDS

THE PROBLEM:

The problems created by flower beds are not a popular subject since homeowners will resist good engineering to beautify their house. Flower beds offer a chance for excessing water ponding and exacerbating the wet cycles. One of the primary problems in flower bed design is installation of a concrete or steel barrier that will resist normal water run-off. Likewise peat, bark, sandy loam and other planting substances, which, in conjunction with bed borders, will increase moisture levels above that desirable. Therefore, flower beds must have some provisions for elimination of excess water, such as openings cut to allow water passage and avoid oversaturation.

TO DO:

There CAN be a balance between aesthetic vegetation and proper drainage considerations such as weep holes, drain barriers or other removal systems. Shrubs planted in the flower bed should be chosen for their compatibility to the shallow barrier of the bed. Short and very contained root growth will be a plus to proper health and maintenance of the bed vegetation. In the flower bed, the slope should be a minimum of 5% (5/8" for every foot of distance), unless ample subsurface drainage can be created to discharge water away from the foundation.

04 GUTTERS AND DOWNSPOUTS

THE PROBLEM:

Gutters and downspouts can become clogged with leaves and other debris. Poor slopes can also cause water to accumulate in low spots, building up debris and accelerating rusting.

TO DO:

Gutters should be inspected twice a year, once in the spring and again in the fall (If there are trees near the roof, gutters may have to be cleaned out more often). All debris should be cleaned out and metal gutters checked for rust.

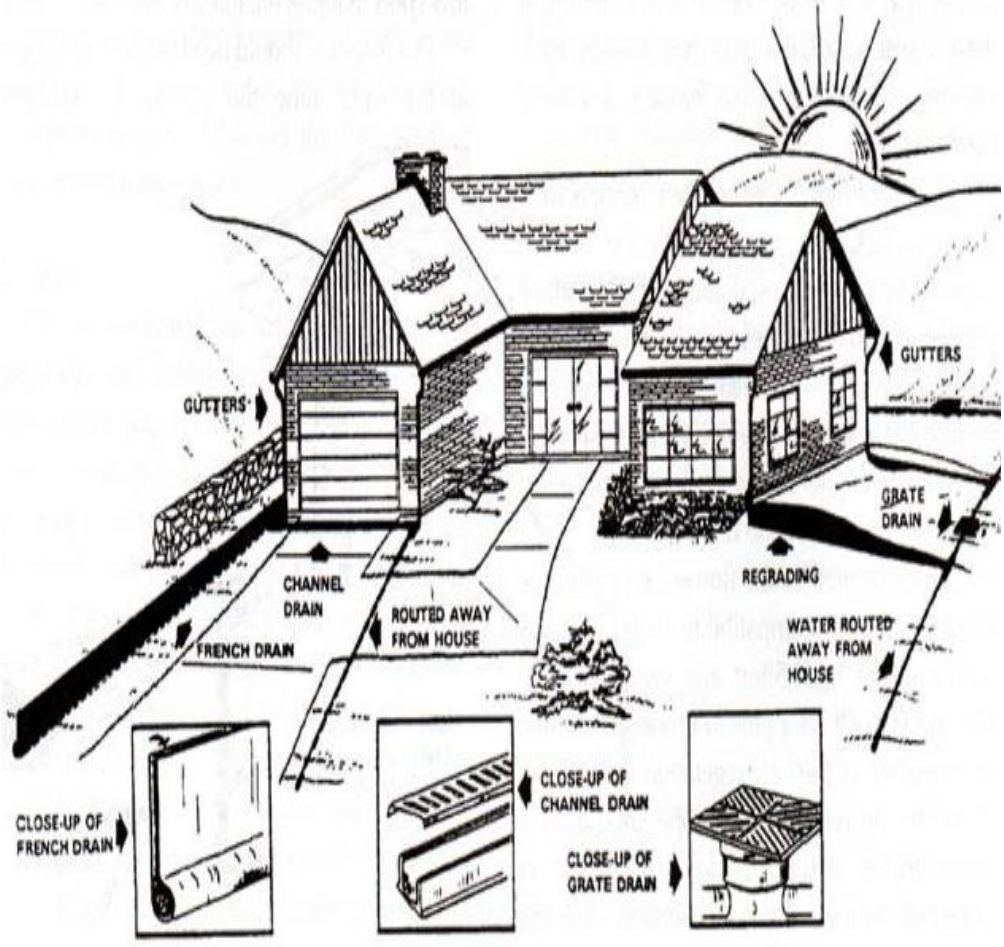
Check the slope of the gutters — they should be a minimum of 1" of fall for each eight feet of length. The easiest way to check the slope of a gutter is to use a garden hose or pour a bucket of water into it and see if the water flows out smoothly or ponds in low spots. The gutter should then be adjusted to remove any high or low spots that prevent the smooth flow of water.

Downspouts should be checked for clogging at the same time the gutters are checked. Clogging often occurs at the elbow where downspout and gutter meet. The elbow can be removed for cleaning, but it may be necessary to use a plumber's snake to clean the down- spout. If there is a problem with leaves, a leaf strainer or leaf guard is a good buy as long as neither prevents proper function of the gutter.

05 SUBSURFACE DRAINS

THE PROBLEM:

Subsurface drains will many times be utilized when topography, vegetation or construction does not make it possible to drain at the surface. These may consist of drain inlet basins, trench drains, funnel drains, etc. If correctly installed, subsurface drains should require little maintenance. ***The most important thing to remember is to avoid covering or obstructing the drain where it discharges and to maintain adequate slope.***



TO DO:

It may occasionally be necessary to clean out roots, nests or other debris from inlet basins or discharging ends of the pipe. Inlet basins should be inspected every 6 months to ensure these do not become clogged with leaves, grass, soil or other debris, which would negate function.

06 CAPILLARY DRAINS & SUMP PUMPS

THE PROBLEM:

Capillary drains are installed to intercept and collect moving subsurface water and discharge it away from the structure. Unless the slope allows, this will many times require installation of a deep sump and pump to collect water and discharge it through a shallow drain line. The pumps utilized in this operation may malfunction and unless an alarm system is installed there will be no warning.

TO DO:

You should inspect the sump at least every 6 months to make sure trash, debris or pump failure has not occurred. If a solid sump well cover is used, there will be less potential for debris, but the homeowner will not be able to view the sump and determine if it is functioning. Therefore, the addition of an alarm is recommended to provide a warning to the homeowner prior to the onset of other problems, such as upheaval or water intrusion into the structure. Discharge lines should have clean-outs to allow removal of obstructions by use of a snake or by jetting. It is recommended to also backwash the system at least every 2 years. The effectiveness of this backwash will normally be seen by a discharge of debris, which may have clogged the system.

07 IRRIGATION & SPRINKLER SYSTEMS

THE PROBLEM:

Watering of lawns and house perimeters must be regulated to maintain consistent moisture content under the foundation.

Watering Tips:

Seasonal monitoring will necessitate different watering for the sides that receive added and hotter sunlight (south and west sides), which increases evaporation. Early morning watering is recommended as less evaporation will occur. A variety of watering heads and systems are on the market that can be customized to a homeowner's needs. Where evaporation is a concern, however, a drip system will provide necessary watering very efficiently.

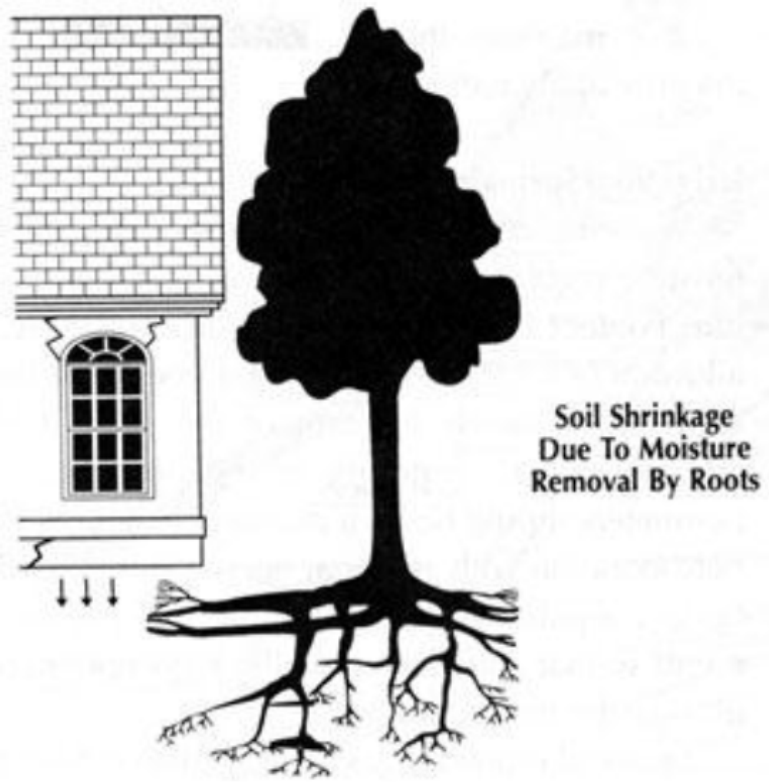
TO DO:

Watering along foundation perimeters should be on a maintenance basis depending on seasonal needs. A close inspection of the ground surface is necessary to ensure appropriate volumes and consistency. The goal is to keep the soil near and under the foundation a consistent moisture (neither wet and/or muddy nor dry and cracked). An inspection of the sprinkler system should be performed at least twice a year to determine if zones are functioning properly and if heads are improperly discharging/broken or if leaks have occurred that will provide uneven watering. This will, in the case of electronic watering systems, require running through the system to determine if times, duration and frequency have been maintained.

08 VEGETATION AND TREES

THE PROBLEM:

Studies from England and the United States have proven conclusively that trees can cause damage to foundation stability and in more severe cases complete foundation failure. Engineering studies map the effect of moisture withdrawal, which can severely damage a slab-on-grade foundation and cause movement in a pier and beam foundation system.



TO DO:

Planting of shrubs, flowers and trees should be done only with the understanding of mature growth. Trees should not be planted closer to the foundation than approximately the mature height of the tree. If the proper distance cannot be maintained, it may be necessary to install a root barrier to reduce the risk of future problems. Pruning of tree branches so that they do not extend over the structure can also be an effective way to limit root growth under the foundation. Further, the plants should fit the environment. In areas where droughts frequently occur, it may be necessary to substitute drought resistant plants and trees to incur less action on the foundation and provide easier maintenance of the foliage.

09 CATCHING PLUMBING LEAKS

THE PROBLEM:

Leaks in water and sewer lines will change the soil equilibrium under a foundation and can lead to differential movement/damage. Catching leaks early will many times avoid extensive foundation damage that may be very difficult to repair.

TO DO:

Learn to recognize the signs if a problem exists: If sewer lines are frequently stopped-up and roots are observed when clean-out rooters are used, a sewer test should be conducted to determine the presence and location of the break. Repair of a break should be made immediately to avoid damage and future problems. If abnormal water bills indicate a sudden surge in water usage, wet spots occur that cannot be explained, or you hear the sound of water running in a bathroom, you should conduct a test of the pressure lines. And, if leaks are found, they should be repaired immediately.

10 LEAK REPAIR FOLLOWUP

THE PROBLEM:

Leaks will often occur under a slab-on-grade foundation that require breakout of a segment of the slab to gain entry and repair the plumbing.

TO DO:

Care should be taken to perform proper compaction of the soil when repairs have been completed. This will require adequate moisture in the utilized soil and compaction of layers no thicker than 3" to restore soil bearing to as it existed prior to excavation. The vapor barrier should be repaired with plastic and a bonding material to provide a vertical moisture stop from vertical capillary action or water migration that may enter the living space.

11 REINFORCING STEEL EXPOSURE

THE PROBLEM:

Many times concrete will blister or peel along the grade beam and reveal post tensioning cable ends or conventional reinforcing steel bars. If left unprotected, corrosion will slowly reduce the originally intended strength of these reinforcing steel members.

TO DO:

If this happens, properly clean the steel and remove all bonds and then install an epoxy grout or non-shrink grout to build back the beam and protect reinforcement. In more severe situations, it may be necessary to drill and epoxy reinforcement dowels/ stirrups to build out the grade beam and provide adequate coverage of the reinforcing steel.

12 BRICK, ROCK OR CLADDING CRACKS

THE PROBLEM:

Movement, weathering and freeze damage will oftentimes create cracking in the brick veneer or mortar that will allow passage of moisture into the vulnerable wall material. This will often lead to deterioration of wood members.

TO DO:

Seal any cracks with a urethane, mortar or caulk that will prohibit weathering problems. Where obvious structural problems are visible such as lateral displacement of veneer, other retainers will be required to prevent additional movement damage.

13 INTERIOR DOORS

THE PROBLEM:

Most slab-on-grade foundations will move differentially, which can cause misalignment of interior doors. Some flexibility in the fit of the doors will reduce the inconvenience of this movement.

TO DO:

Check that interior doors have a minimum 1/8" to 3/16" clearance between the top and side with the frame. This will allow some seasonal movement prior to sticking. It is also a good idea to provide adequate clearance off the carpet or floor to further buffer movement and allow for different heights of carpet and/or flooring.

14 ANIMAL DAMAGE

THE PROBLEM:

Dogs, skunks, armadillos, snakes etc. will many times burrow under a slab or pier and beam foundation. This will undermine the bearing soil and may provide entry for water that was not possible prior to the excavation.

TO DO:

It's vital to backfill any entryways or burrowing points or place an impenetrable shield to prevent further entry. It is also important to restore positive drainage that may have been disturbed in order to continue to prevent foundation moisture instability.

15 TERMITE DAMAGE

THE PROBLEM:

Wood should not touch the ground at any place near a foundation. When you add moisture to wood on the ground, you provide a perfect environment for growth of termites and other wood eating insects.

TO DO:

You should take care to avoid laying, placing or constructing wood that engages the ground. This includes removal of any wood pieces that may exist in the crawl space of a pier and beam foundation.

ENJOY STRESS-FREE HOME REPAIR WITH KC WATERPROOFING

AT KC Waterproofing, we know you want to easily repair any foundation or waterproofing issues so your home can be comfortable, safe, and dry. To do so, you need a proper assessment of your situation in order to pinpoint the best solution for you.

***The problem is*, when your home is at risk, the process of finding the best solution can become even more overwhelming** — it can be impossible to discern exactly what's wrong or who's guidance to trust.

We believe your home is sacred — you and your family deserve to be safe and able to repair your home without worrying if the repairs will stand the test of time or if it solved the entire problem.

That's why you'll love working with KC waterproofing — as a family-owned-and-operated business, we've helped more than 30,000 families in our community improve safety, stop worrying about water damage in their home, and expand their livable space.

Here's how we do it:

STEP 1
Discussion:

Give us a call to talk about your current problems, needs, and goals for your home.

STEP 2
Inspection & Plan:

We'll come out to do an intensive inspection & put together a repair plan with a range of options so you can select the one that works best for you.

STEP 3
Repair:

Enjoy peace-of-mind about the dryness and safety of your home with a prompt, efficient repair that you can be confident will last your home's lifetime.

We'd love to help you, too.
Give us a call at 816-226-4547 or schedule a time by clicking here.