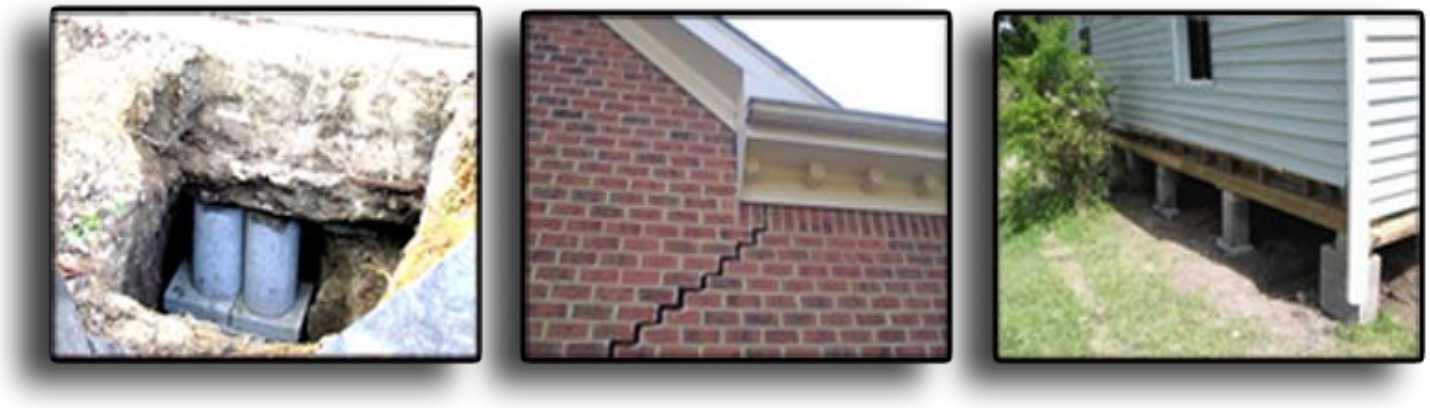
symptoms of a faulty foundation

How does drought impact your home's foundation?

For many Texas families, their home becomes the single largest investment and also the family fortune. The home's foundation has the power to drastically influence the home's overall value. We can help you keep your home's value!



So, if the foundation fails or it is compromised, this dwindling condition transfers to the home's overall value. These are signs that you may have foundation problems. Without professional foundation repair, these symptoms will grow worse and may even threaten the structure of your home.

Below is an image of a cracked foundation wall

During periods of prolonged dryness, the soil surrounding your home shrinks away, causing foundation issues that can grow into severe problems over time.

If doors and windows throughout your home are becoming hard to open or close, it could be the result of a shifting foundation.

The foundation of your home is buried. You can see the foundation by going into the basement and looking at the concrete walls from the inside, but it still doesn't give you a clear view of the whole foundation.

The concrete in foundations, especially foundations found in older homes, can crack under the immense pressure of the building and the ground around it. Cracked foundations can cause all sorts of the problems that you may not connect to a compromised foundation.

Below are six symptoms that hint at a faulty foundation:

1. Doors that will not open or close smoothly or properly.

With a shifting foundation, the house can settle, which can bring down the door jams just a few millimeters. This will be enough to make opening a door difficult as it will drag on the ground or not fit into the sill.

2. Cracks on the walls near doors and windows.

If the house settles quickly, then the walls will crack at weak spots near openings. If you begin to see these cracks, it's time to contact a foundation repair professional.

3. Windows become difficult to open or close.

Much like the stuck door, the sill will move but the window frame remains the same size, making it extremely difficult to open or close the window.

4. A small gap found at the bottom of the garage door.

Again, the house moves but the door stays the same size. This gap tells you that the building is changing shape.

5. The expansion of caulk around doors and windows.

If the house is moving, it will pull on the rubbery caulk and stretch it, creating an unsightly problem.

6. Unleveled floor.

This is most easily seen in a room with hard floors like a bathroom, kitchen or hallway. The floor underneath you actually slopes.

If you find too many of these foundation problematic symptoms, then you may want to call a professional to appraise the foundation of your home. Foundation repairs can save your home from a premature demise.

Foundation types

There are three basic types of foundations for most permanent homes: the full basement, the crawlspace and the slab. While the construction of each of these foundation types is different, there are some similarities among them.

Foundation construction is regulated by local building codes. These codes take into account various local geological characteristics, as well as the year round weather conditions of the area. From a geological standpoint, such items as soil makeup, elevation, slope and water table statistics will be used to formulate the building code.

How foundations are built

Excavation for the footing is the first task to be done. The footing is usually comprised of steel-reinforced concrete and is poured two to three times the width of the foundation thickness. Building codes require that the foundation is constructed below the frost line of the area.

This is to ensure that the natural freezing and thawing of the building site does not put undue stress on the foundation. The thickness or depth of the footing depends upon the weight of the structure that will be supported. A thicker footing will support more weight; therefore, this would be a good time to plan for possible future expansion.

Wood beams were added to this house's foundation, which was initially poorly constructed.

After the footing trench has been excavated to the proper depth, a form is built to contain the footing. After the concrete has been poured, the form may be reinforced by backfilling. The footing must be allowed to cure before additional weight is placed on it. Because this is a crucial part of construction, patience must be exercised here. Not only does the curing process solidify the concrete, it also compacts the soil underneath the footing to keep the foundation from shifting.

When the footing has to cured, it is time to remove the forms and build the foundation. The foundation may be constructed of either concrete block and mortar or a concrete stem wall. Foundations can also be constructed of other materials such as wood, steel or stone.

The best course choice will be to construct the foundation using strong, long lasting and water resistant materials. Because the foundation is such a critical part of the building, it is desirable to consult a structural engineer to assist in designing it. The engineer will know how to properly size the foundation and be able to specify the materials needed for successful construction.

When the foundation is constructed of concrete, anchor bolts, also called J-bolts, are often used to assist in securing the framework of the house to the foundation. The anchor bolt is usually ½ inch in diameter

and 6 inches long in residential construction. The J shape of the bolt prevents it from being pulled out of the concrete.

Holes are drilled in the bottom plate of the wall framework for attachment. Most of the foundation is constructed underground; therefore, dirt is back filled into the trench once construction is completed, filling it back up to grade level.

You should plan for future expansion when designing your foundation. For example, a slab type foundation is used for patios and parking areas. Foundations for slabs are generally not as strongly built as foundations, crawl spaces, or full basements. If there is a possibility that the patio or parking space will be enclosed in the future, it would be expedient to use a foundation for that future expansion possibility.

Common problems

Drought is to blame for the crack in this house's foundation.

An improperly constructed foundation can cause problems in the house. Problems can also arise over time due to various weather events such as drought and geological changes like soil's natural tendency to settle.

Some of the signs of foundation problems are cracks in the interior walls, separations between the concrete blocks in a block foundation or cracks and crumbling of a concrete foundation. Other signs are

doors that will not close properly and bulging floors. This can be caused by not allowing the footing to cure sufficiently. Any uncured concrete in the footing can compress and allow the foundation to shift.

Other causes of foundation problems are excessive water damage, often caused by flooding, and excessive structural movement caused by high winds. A footing that is constructed above the frost level - and not far enough below it - can cause damage to the foundation due the soil expanding and contracting, also know as frost heaving, during freezing weather. Earthquakes can also shift the ground enough to cause foundation problems. In extremely damp or wet locations, water can erode the foundation materials, causing them to break down, shift or disintegrate.

Repairing foundation damage

Foundation damage can be caused by various factors. The foundation on this home needed repair after slabs settled due to drought.

When the warning signs of a foundation problem are discovered, the homeowner should have the problem evaluated by a professional. Some foundation problems are cosmetic only and do not affect the structural integrity of the home. A foundation expert will be able to evaluate the situation and make recommendations as to what should be done.

The cosmetic damage caused by minor foundation problems can usually be repaired by the homeowner. However, if the load-bearing capability of the foundation has been compromised, then a professional foundation repair specialist should be contracted to make the appropriate repairs.

Repair techniques made to a sunken or damaged foundation depend on the type of the original foundation. In crawlspaces, a shoring- up method called a pier and beam repair is often used. The beams of the crawlspace are jacked to a higher position and shims or additional timbers are placed under the beam to hold the new position. Installing some additional piers may be necessary to distribute the weight evenly. This increases the support area for the foundation. Round, cement-filled pylon tubes are often used to create additional piers.

Concrete leveling with 'slab jacking'

A process called slab jacking is commonly used for concrete slab foundations. Holes are drilled at various locations in the slab to allow access to the voided areas underneath. An expanding, quick-hardening solution is pumped into the hole, filling the void and hydraulically raising the sunken foundation to its original level. The drilled holes are filled with cement, sealing in the mix. Depending on the properties of the mix, full use of the slab can be restored in a relatively short time.

It would be a good idea to contract the services of a foundation specialist or inspector when considering the purchase of an existing home. The inspector will look for clues that indicate foundation problems. For example, he or she will be looking for mortar cracks in the foundation cinder blocks, as well as in the interior damage that may indicate foundation problems.