

Not Always the Foundation

by Travis Nech

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NOT ALWAYS THE FOUNDATION

A Texas Homeowner's Guide to Telling Real Foundation Movement Apart From Plumbing, Framing, Roof, and Settling Look-Alikes, and Knowing What to Fix First

Travis Nech

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This book is educational. It reflects fifty years of hands-on field experience in brick, masonry, and foundation work across Texas. It is not an engineering report and it does not replace one. Travis Nech is not a licensed engineer, and nothing in these pages should be taken as a licensed engineering opinion about your house. Where a house needs an engineering judgment, this book says so plainly and tells you to hire an independent structural engineer. Every house example in this book is a hypothetical or a composite drawn from common patterns. No example is a named customer, and no example should be read as a testimonial or a review.

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Introduction: The Most Expensive Word in a Texas House

Say the word foundation at a Texas kitchen table and watch what happens to the room. Shoulders go up. Faces go tight. Somebody starts doing hard math in their head about savings and home values and whether they should have bought a different house. It is the most expensive word in a Texas home, not because every foundation problem is a disaster — most are not — but because the word gets used for almost everything a house does that a homeowner cannot explain.

A door sticks in August. Foundation. A crack opens over a bedroom doorway in February. Foundation. A tile pops loose, a floor feels uneven, a cabinet pulls away from a wall by the width of a fingernail. Foundation, foundation, foundation. Sometimes that word is right. A great many times, in my fifty years of looking at Texas houses, it is wrong — and when it is wrong, it is expensive in both directions. A family that pays to lift a house that never needed lifting has spent real money and fixed nothing, because the leak or the truss or the dry lumber that caused the sign is still there doing its work. A family that waves off a real movement sign as "just settling" for five years can turn a modest repair into a major one. The word costs money when it is wrong in either direction.

This book exists to slow that word down. Not to talk you out

of foundation repair — I have spent decades doing foundation repair, and when a house needs its foundation held, holding it is the right and honest work. This book exists to teach you how to tell the difference before you sign anything: what real foundation movement actually looks like, what it feels like under your feet and in your doors, and how it differs from the long list of look-alikes that wear its clothes. Plumbing leaks that swell the clay under one corner. Roof trusses that lift a ceiling every winter and set it back down every spring. Drywall that cracks because lumber dried, not because the ground moved. New houses settling honestly in their first years. Trees drinking one side of a yard dry. A pool shell, a sprinkler line, a grade that pours roof water against one wall. Every one of those has been blamed on a foundation, in houses I have walked, by people who were scared and, too often, by people who were selling.

You will learn a working order for the whole question. First, learn how a Texas foundation truly moves, because you cannot judge a look-alike until you know the real thing. Second, learn to read signs by family — doors and floors, cracks, plumbing signs, signs from above, signs from outside — and learn the other cause that explains each one most often. Third, learn to measure before you guess: a simple log, dated photographs, and a proper set of elevation readings turn an argument into a record. Fourth, learn which professional belongs at your house first, second, and third, because the order matters as much as the names. A plumber's leak test can save you a foundation bill. An independent structural engineer's report can save you from a sales pitch — including, I will say it plainly, a sales pitch from a foundation company like mine. And when the verdict truly is the foundation, you will learn what a permanent repair looks like from the ground up: pressed concrete piles, driven one segment at a time until the ground itself refuses to take more, because that refusal is the proof the pile has reached ground that can hold your house.

One promise runs through every chapter. I will not pretend certainty I do not have, and I will teach you to be suspicious of anyone who does. A house is a system sitting on living ground in a hard climate. Honest answers about it come from patterns, measurements, and time — not from a single crack and a confident voice. By the last chapter you will have a decision plan you can work step by step, honest ballpark costs with their limits stated, and a care routine for whichever verdict your house earns. Blame last. Measure first. That is the whole book in four words, and it will serve you for as long as you live in a Texas house.

Chapter 1: The Blame Game —

Why Everything Gets Called a Foundation Problem

If a door sticks in Texas, somebody in the house will say the word foundation before the day is over. If a crack shows up over a window, if a floor feels a little springy, if a tile line opens up in the kitchen, the same word comes out.

Foundation. It is spoken the way people used to speak about the weather — as the explanation for everything they cannot quite explain, and as the thing they are most afraid it might be.

I have spent 50 years in brick, masonry, and foundation work across Texas, with my hands in the dirt and on the walls of houses from the Dallas-Fort Worth area down through Central Texas. In that time I have been called out to look at hundreds of houses where the owner was already convinced the foundation had failed. Sometimes it had. Often it had not. And a good share of the time, something else was moving, leaking, swelling, shrinking, or wearing out — and the foundation was getting blamed for another trade's problem.

This book is about learning to tell the difference, calmly and in the right order, before you spend serious money fixing the wrong thing.

Why the Foundation Is the Easiest Answer

There are honest reasons the foundation gets blamed first. It is the biggest, most expensive, and least visible part of the house. You can see a roof. You can open a faucet and watch a pipe leak. You cannot stand in your living room and look at the bottom of your slab or the soil underneath it. What we cannot see, we worry about, and worry has a way of filling in blanks with the worst possibility.

Texas gives that worry plenty of fuel. Much of our state sits on clay soils that swell when they get wet and shrink when they dry out. Houses here do move — a little, seasonally, and sometimes more than a little. Because real foundation movement is common in Texas, it becomes the ready explanation for every symptom that looks even a little like movement. A true thing, repeated too often, starts to cover things that are not true at all.

There is also the way houses get talked about when they are bought and sold. A home inspector will often note a sticking door or a crack and recommend further evaluation by a foundation professional. That recommendation is responsible. It is not a diagnosis. But by the time the report has been read by a buyer, a seller, and two agents, "further evaluation recommended" has a way of turning into "the foundation is

bad." Those are not the same sentence.

Neighbors mean well and can add to it. One house on the street gets foundation work, and suddenly every crack on the block gets the same story. Contractors can add to it, too, and I say this as a man who has made his living in this trade. A company that sells one kind of repair will naturally look hard for the problem that repair solves. That does not make every foundation contractor dishonest — most of the men and women I have known in this work take pride in it — but it does mean a homeowner should always ask a simple question of anyone who looks at the house, including me: what else could cause this, and how did you rule it out?

I am not a licensed engineer, and this book does not pretend to be an engineering report. My authority is field experience — 50 years of looking, measuring, digging, and watching what houses actually do over time. Where a house shows signs that call for a structural engineer, I will say so plainly in these pages, and I advise you to hire one. A good engineer, paid for an opinion rather than for a repair, can be money very well spent.

What Gets Lumped In

Let me lay out the usual suspects that arrive at my door wearing a foundation costume.

Plumbing leaks are at the top of the list. A slow leak under a slab or in a wall can soak soil, rot wood, swell materials, and lift or soften a small area in a way that looks exactly like the ground itself heaved. The house shows movement symptoms because, in a local way, the ground really did move — but the cause was water from a pipe, not the natural behavior of the soil across the whole lot. Fix the foundation in that case and leave the leak, and you have paid for the wrong job while the real problem keeps working underneath you.

Framing problems are next. Houses are built largely of wood, and wood changes with moisture and age. Studs can bow. Plates can shift slightly as lumber dries. A truss can lift in cold weather and press on interior walls, opening cracks at the ceiling that come and go with the seasons. None of that is a foundation failure, though the cracks it makes can look alarming to a family seeing them for the first time.

Roof problems belong on the list, too, and homeowners are often surprised by that. A roof that leaks can stain and soften drywall until it cracks. A roof structure that was framed a little out of level, or that has settled into its bearing points over decades, can telegraph uneven lines down through ceilings and walls. Water from above and movement from below can draw very similar lines on the same wall.

Then there is ordinary settling and ordinary wear, which are not the same as failure. Nearly every house settles a small amount in its first years as soil compacts under its weight and materials find their resting places. Hairline cracks at drywall joints, a door that needed one adjustment in ten years, a faint slope you can only find with an instrument — these can be the normal biography of a house, not the first chapter of a collapse.

Finally, there is the work of previous repairs and remodels. A floor laid over an uneven subfloor will feel uneven forever, and no foundation repair will change it. A door hung slightly out of square in 1998 will stick in the humid summer of every year after, faithfully, until somebody planes it or resets a hinge. Houses carry their history, and some symptoms are just history repeating itself on schedule.

The Cost of the Wrong Blame

Getting the blame wrong costs more than money, though the money is real enough. Foundation repair, when it is truly needed, is serious work. In general ballpark terms, a homeowner might hear figures from several thousand dollars for a limited repair to well into five figures for a large one, and any number you hear — including that one — depends entirely on the house, the access, the soil, and the scope, and should never be taken as a quote. Spending that kind of money on a house whose real problem is a leaking pipe or a swollen door frame is a hard lesson.

The second cost is delay. While a family saves, worries, and argues about a foundation that is not failing, the actual problem keeps going. A small plumbing leak does not stay small. Roof water does not get tired and stop. Rot does not take a season off.

The third cost is what a wrong repair does to the house itself. Lifting one part of a foundation that did not need lifting can crack brick, bind doors that used to work, and stress plumbing lines that were fine before. Good repair work, done where it is needed, is a blessing to a house. The same work, done where it is not needed, is an injury. That is why diagnosis matters more than salesmanship, and why the order of investigation in this book matters: look first, measure honestly, rule out the look-alikes, and only then talk about repair.

A Hypothetical to Start With

Consider a hypothetical example — not a real customer, but a composite of situations I have seen many times. A family notices in August that a bedroom door will not latch and a crack has opened over the door frame. A friend says

foundation. The family calls for estimates, and the numbers frighten them. But a careful look finds that only that one door is affected, the crack is hairline and follows the drywall tape joint, the exterior brick on that side of the house shows no corresponding crack, and the door itself has a loose top hinge and swollen wood on the latch side from a humid summer. A carpenter's hour and a paint touch-up close the case. The foundation never moved at all.

Now change one fact in that same hypothetical: three doors along one side of the house bind at the same corner, the crack over the frame is wide enough to fit a pencil lead and keeps growing, the brick outside shows a stepped crack in the same area, and the floor slopes measurably toward that side. That is a different house, even though it started with the same sticking door. The lesson is not that sticking doors are harmless. The lesson is that a single symptom proves almost nothing. Patterns prove things. Location, direction, timing, and company — what other signs travel with the first one — are what separate a look-alike from the real thing.

That is the work of the chapters ahead. We will learn how a Texas foundation actually moves, so you have a true picture to compare against. Then we will walk the house sign by sign — doors, floors, cracks, brick, ceilings, plumbing, drainage, and the yard itself — and for each sign ask two questions: what would foundation movement do here, and what else does exactly the same thing?

Hold on to one sentence from this chapter, because it will carry the whole book: do not fall in love with the first explanation, especially when the first explanation is the most expensive one.

Chapter 2: How a Texas Foundation Actually Moves

To tell real foundation movement from its look-alikes, you first need a clear picture of the real thing. How does a Texas foundation actually move? Not in the dramatic way of movies, with walls splitting in a night. Real movement is usually slow, seasonal, uneven, and tied — almost always — to water in the ground. Understand the water, and you understand most of what a Texas house does.

It Starts With the Soil, Not the House

A foundation does not move on its own. It rides on soil, and in much of Texas that soil is expansive clay. Clay is made of extremely fine particles that act, in simple terms, like a dry sponge. Add water and the sponge swells, taking up more room and pushing upward with surprising force. Take water

away and the sponge shrinks, pulling back and leaving the ground lower and sometimes cracked open at the surface. A house built on that sponge goes up and down with it, a fraction of an inch here, an inch there in bad years, rarely all at once and almost never evenly.

That word — evenly — is the key to this entire book. If the whole house rose exactly one inch and settled back exactly one inch, together, as one piece, the family inside might never notice. Doors would still swing, cracks would not open, floors would stay level relative to each other. Damage comes from differential movement: one part of the house moving more, or in a different direction, than another part. One corner dries and drops while the middle stays moist and high. One side swells after a wet spring while the shaded side stays put. The house, which is stiff, resists being bent — and the resistance shows up as cracks, binding doors, and sloped floors. When you evaluate any sign in your house, you are really asking whether the pattern fits differential movement of the ground beneath it.

Texas weather is built to produce exactly that uneven pattern. We get long, hot droughts that bake moisture out of exposed soil, broken by heavy rains that soak one side of a lot more than another. A south-facing flower bed in full sun dries at a completely different rate than a shaded north side under big trees. The result is that the soil under a single house can be, at the same moment, wet and swollen in one place and dry and shrunken ten feet away. The foundation lives on that uneven sponge, and it answers accordingly.

The Main Ways a Foundation Moves

Seasonal movement is the most common and the least dangerous. In a typical year, soil moisture rises in the cooler, wetter months and falls in the summer heat. The edges of a slab, which are closest to the weather, move the most; the center, protected by the house itself, stays more stable. Engineers and field men alike have long observed this edge effect — a slab can lift slightly at the perimeter in wet seasons and drop at the perimeter in dry ones, gently rocking around its steadier middle. Doors that bind a little every August and free up every January are often telling this seasonal story, and a story that repeats and reverses itself is very different from one that only gets worse.

Settlement is movement in one direction: down. It happens when soil under a footing compacts, washes out, or dries and shrinks away, letting that part of the house descend. Some settlement is the ordinary, early, self-limiting kind described in Chapter 1. Continuing settlement — a corner that drops a little more each year, opening wider cracks — is another matter, and its steady one-direction pattern over time is one

of the marks of a genuine problem.

Heave is the opposite: soil swelling and pushing a section of the house up. Heave is frequently tied to water where water should not be — a plumbing leak under a slab, a broken irrigation line, drainage that dumps roof water against one wall year after year. Heave fools people because the high spot gets the attention, while the real story is the water source. It also fools people in the opposite direction: the area that did not heave can look, by comparison, like it settled, and a repair aimed at the low side alone can miss the cause entirely.

There are also the effects of trees, which deserve respect in Texas. A large tree near a house drinks an enormous amount of water from the soil, especially in a dry summer, and its roots concentrate that drinking under and near the canopy. The soil on the tree side can shrink more than the soil elsewhere, dropping that side of the house. Cut the tree down, and the story can reverse over several years as the soil slowly rehydrates and swells back. Neither direction is mysterious once you know to ask what the trees have been doing — and when.

What Your Foundation Is, and Why It Matters

Most Texas houses sit on one of a few foundation types, and each moves and shows movement differently.

A slab-on-grade foundation is a single pad of concrete poured at ground level, thickened at the edges and often strengthened with steel rebar or post-tension cables inside the slab — steel in its proper construction role, as reinforcement within the concrete itself. The house is built directly on the pad. Slab houses telegraph soil movement quickly into doors, floors, and drywall, because the frame sits right on the moving surface.

A pier-and-beam foundation raises the house on a system of piers and beams, with a crawl space beneath. These houses can move at individual piers, and — just as important for our purposes — they have a whole under-floor world of wood beams, joists, and shims that can rot, shift, or compress and produce movement symptoms that belong to the structure above the piers, not to the ground below them. A pier-and-beam house demands a look underneath before anyone pronounces on its foundation.

Suspended and deeper systems exist on larger or commercial work, but for the Texas homeowner reading this book, slab and pier-and-beam cover the great majority of houses you will ever evaluate, including your own.

What Real Movement Usually Looks Like Over Time

Real, significant foundation movement tends to have a recognizable character. It is progressive or seasonally dramatic rather than static — measurements and crack widths change over months. It is patterned — signs cluster on one side or one corner and agree with each other in direction: the doors that bind, the cracks that open, and the slope of the floor all point to the same area moving the same way. It shows both inside and outside — interior drywall signs have cousins in the exterior brick or in separated trim on the same part of the house. And it has a plausible cause in the ground: drought, drainage, trees, a leak, or soil that was poorly prepared before the house was built.

Contrast that character with its opposites, because the contrast is your everyday tool. A crack that has not changed in five years, under paint that has not broken, is history, not an emergency. A single door that binds while every other door and window in the house works freely is a door problem until proven otherwise. A floor that feels soft in one spot, rather than sloped across a room, is usually a subfloor or joist problem. Movement that appeared in a single week, suddenly, in one room, deserves a search for water before it deserves a foundation bid.

A note on measuring, since this book will return to it often: your senses are good first instruments. You live in the house. You know which door changed and when. But senses misjudge slopes and distances badly, so honest evaluation uses simple tools — a level, a tape, a marble or a ball of water in a clear tube if you want to get particular, and dated notes and photographs over time. A crack photographed beside a coin for scale, with the date written down, is worth more in six months than the strongest memory. Contractors and engineers both respect records, because records turn arguments into observations.

If repair does become necessary — truly necessary, after the look-alikes are ruled out — the method this book covers for Metro Foundation Repair work is the pressed concrete pile: sections of concrete driven into the ground, one over another, using the weight of the structure itself, until the pile reaches refusal — the point where the ground proves it can hold the load and the pile will drive no further at that pressure. That ground-proving standard matters, and a later chapter is devoted to it. For now, hold the simpler point: piles are an answer to a soil problem. They are not an answer to a plumbing problem, a framing problem, or a roof problem, and no honest diagnosis should reach for them until the ground itself has been shown to be the culprit.

In the next chapter we go inside the house and start with the signs homeowners notice first: doors that misbehave, floors that feel wrong, and the general feel of a house underfoot — and all the ordinary things, besides the foundation, that cause every one of them.

Chapter 3: Doors, Floors, and Feel — Interior Signs and Their Other Causes

Ask a room full of Texas homeowners how they first suspected a foundation problem, and most will not mention the foundation at all. They will mention a door. The bathroom door that used to latch with a click and now has to be lifted by the knob. Doors are the house's everyday instruments — you operate them a dozen times a day, with your hand, half asleep — so you notice a quarter-inch change in a door long before you would notice it anywhere else. Floors come second: a slope you feel in your bare feet, a bounce that rattles the china, a dip that collects the dog's ball in the same corner every time.

Doors and floors are excellent early-warning instruments, and famously easy to misread. This chapter teaches you to read them carefully.

How a Door Tells a Story

A door hangs in a frame, and the frame is fastened to the wall. If the wall moves — because the ground under it moved — the frame goes out of square, and the rectangular door no longer fits its opening the way it did. The classic movement pattern is diagonal: the door binds at the top corner on the latch side, or drags at the bottom, and the gap around it becomes uneven — wide at one corner, tight at the opposite. Cracks may appear in the drywall at the corners of the frame, running at an angle, because those corners are where the stress of a racked opening concentrates.

When several doors along the same wall or the same side of the house show that diagonal pattern at the same time, and the pattern grows worse over a season, you are looking at a story worth taking seriously. The doors agree with each other, and agreement among separate signs is, as Chapter 1 said, what patterns are made of.

But now consider the other causes, because in my 50 years in the field, they account for a very large share of the sticking doors I have been called to judge.

The Door Itself, the Hinges, and the Weather in the House

Wood doors swell. In a humid Texas summer, or in a bathroom with a long-shower habit and a weak exhaust fan, a solid wood door takes on moisture and grows — not by much, but a door fitted with an eighth-inch of clearance does not need much. The same door that sticks in August swings free in the dry air of January. That seasonal rhythm, in a single door, in a damp room, is usually humidity at work, not the ground. Paint adds its own small treachery: a few coats over the years, especially on the edge of a door and the stop of the frame, can eat the clearance the builder left.

Hinges are the great unexamined suspect. A hinge screw that has worked loose in its hole lets the whole door sag on the latch side, producing exactly the diagonal gap pattern people blame on the foundation — wide at the top of the latch side, dragging at the bottom corner. The test costs nothing: open the door halfway, take hold of the knob, and lift gently. If the door moves on its hinges, or if you can see a gap open and close at the top hinge as you lift, you have found at least part of your problem. Tightening screws — sometimes replacing a short screw with a longer one that reaches the stud — has cured more "foundation problems" than I can count.

Frames and trim have their own failures. A frame installed slightly out of square will produce a faithfully sticking door for decades. Trim can separate at a corner from nothing more than shrinking caulk and seasonal wood movement, drawing a dark line that looks like structural cracking to a worried eye.

Here, then, is a practical order of checks for any problem door. First, is it one door or many, and do the many agree in pattern and location? Second, does it change with the seasons, and does it reverse? Third, are the hinges tight and the gaps even when you account for sag? Fourth, is there a crack pattern at the frame corners, and does anything outside the house — brick, trim, a slab edge — tell the same story on the same wall? A door that fails all four checks toward innocence deserves a foundation evaluation. A door that passes any one of them toward a local cause deserves a carpenter's look first. These are not rules that decide the case by themselves; they are the questions that keep you from skipping steps.

Hypothetical: Two Houses, Two Doors

Picture a hypothetical house — a composite, not a real customer. In House A, one door sticks: the guest bath, every summer, fine every winter. The homeowner checks the hinges and finds them tight, but notices the door edge is nearly bare of paint clearance and the bath fan is weak. A handyman

planes a shaving off the edge, seals the wood, and the door works year-round. Total cause: moisture and a tight original fit.

In hypothetical House B, the front door, a hall door, and a bedroom door — all on the east side — begin binding at the same top corner over one dry summer, and cracks open above two of the frames while a stepped crack appears in the east brick wall outside. No hinge is loose. No single local cause explains three doors at once, agreeing with each other and with the exterior wall. House B gets a foundation evaluation, and House B deserves one. Same first symptom — a sticking door. Completely different houses, once you read the whole story.

Floors: Slope, Bounce, and Soft Spots Are Three Different Words

Homeowners often describe a floor problem with a single word — uneven — but there are at least three distinct complaints hiding in it, and they point in different directions.

Slope is a floor that tilts as a whole: things roll, a level laid across the room shows a steady grade, and you may feel it in your ankles standing still. A genuine, measurable slope across a whole room or a whole side of a house is one of the signs most consistent with differential foundation movement — the ground side of our story. But even slope has look-alikes. Some older floors were never level to begin with; builders worked to tolerances that would surprise modern buyers, and a floor can be honestly sloped since the day it was framed. A long, slow, unchanged slope in an old house, with no cracks and no binding doors traveling with it, may simply be how that house was born.

Bounce is a floor that flexes underfoot — springy, lively, sometimes noisy. Bounce is a framing complaint far more often than a foundation one. Floor joists sized at the edge of their span, a long unsupported run, or a joist damaged by plumbing cuts or insect work will all give a floor bounce while the foundation under it sits perfectly still. In slab houses there is no bounce — concrete does not spring — so a homeowner who reports a bouncy slab floor is usually feeling something in the flooring material itself, such as a floating laminate moving over an uneven spot.

Soft spots are the third word, and the most local: a place, often small, that feels spongy or gives slightly when stepped on. In pier-and-beam and framed floors, soft spots mean subfloor trouble until proven otherwise — water damage from a slow appliance or bath leak, decay, or insect damage in the wood. They call for a look underneath and a search for

moisture, not a foundation bid.

The Feel of the House, and Learning to Keep Records

Beyond doors and floors, homeowners report a general feel — the house seems off, sounds different, pops at night. Take that feel seriously as a prompt to look, but not as evidence by itself. Houses pop and tick as temperatures swing and materials expand and contract; a cooling attic at midnight is a small orchestra of harmless noises. What turns a feeling into useful information is a record. Walk the house once a season with a notebook. Note which doors bind and how much, using a coin or a carpenter's shim as a rough gauge at the gap. Photograph cracks beside a ruler. Lay a long level on the floors you worry about and write down what it says, in which room, facing which direction. Date everything.

Three months of that notebook will tell you more than any single visit — mine included — because foundation questions are questions about change over time. A sign that is stable is a fact about the house. A sign that is growing is a process in the house. They call for different responses, different urgency, and often different trades entirely.

If your records show a growing, agreeing pattern — multiple doors, directional slope, cracks that widen — that is the moment for a professional evaluation, and you should feel no embarrassment about calling for one. If the pattern is severe, sudden, or involves sagging you can see, visible separation, or floors you no longer trust underfoot, that is also the moment to consider hiring a structural engineer for an independent opinion before any repair is sold to you. I am a field man with 50 years in this work, not an engineer, and the counsel in this chapter is the counsel of experience: read the doors and floors carefully, rule out the hinges, the humidity, the joists, and the leaks — and when the signs still agree after all that, believe them, and deal with the ground.

The next chapter takes up the sign that frightens homeowners most, and sells more unnecessary repairs than any other: cracks — in drywall, in ceilings, and in the brick outside.

Chapter 4: Cracks That Lie — Drywall, Tile, Brick, and Concrete Cracks and Their Look-Alikes

If I had a dollar for every time a homeowner called me in a panic over a crack, I could have retired twenty years ago. And if I had another dollar for every time that crack turned out to

be something other than foundation movement, I could have bought the ranch next door too.

After fifty years walking houses across Texas, I have learned this first lesson, and I teach it to every young man who rides with me: a crack is a symptom, not a diagnosis. It tells you something moved, shrank, expanded, got wet, got dry, or got loaded wrong. It does not, by itself, tell you the foundation failed. That is why this book is called Not Always the Foundation. Some cracks do mean the footing is moving. Many do not. Learning the difference saves money, saves worry, and keeps you from fixing the wrong thing first.

Drywall Cracks That Are Mostly Talk

The most common drywall crack I see is a straight, thin line along a taped joint, especially on a ceiling or at the top of a wall. That is usually shrinkage and seasonal movement in the framing. When a house is built, the wood holds moisture. As it dries over the first year or two, it shrinks a little. The tape gets stressed and a hairline opens. In Texas heat, you see the same thing when the attic gets well over a hundred degrees and framing expands and contracts with the seasons.

Another classic is the diagonal crack that starts at the corner of a door or window and runs out at about a forty-five degree angle for twelve to eighteen inches. Homeowners see diagonal and think foundation right away. Sometimes they are right to be concerned. But a single, short, hairline diagonal at one door, with no sticking, no slope you can feel, and no matching crack outside in the brick, is often just stress concentration. Corners concentrate stress the way a tear starts at a nick in paper. The house settles a tiny, normal amount after construction, the framing racks just a fraction, and the drywall shows it at its weakest point.

What worries me more is a pattern. One crack is talk. Five cracks talking at once is a conversation you need to hear. I look for cracks that keep growing month after month, cracks wider than about an eighth of an inch, cracks that show on both sides of the same wall, and cracks paired with doors that suddenly stick, baseboards pulling away on one side of a room, and ceilings pulling away from walls. I also watch for cracks that come back after a good repair — properly embedded tape, not just paint over the line. A cosmetic crack fixed right tends to stay fixed. A movement crack keeps reopening because whatever is driving it has not stopped.

Here is a field test you can do yourself. Take photos with a coin next to the crack for scale, write the date on painter's tape beside it, and mark the end of the crack with a light pencil line. Check it in thirty and sixty days. If it is not longer or wider through a change in weather, it is likely old and

stable. If it is marching across the wall, call someone who will measure the floor, not just look at the wall. A good evaluation looks at elevations across the whole house, the exterior, drainage, and plumbing — not just one crack.

Hypothetical example, for illustration only: a two-year-old home near Fort Worth where the owner finds a thin vertical crack above the living room window in August. No doors stick, the brick outside is clean, the floor feels level, and the crack closes a little in winter. That points to seasonal framing and drywall movement, not a footing dropping. The fix is a proper drywall repair and monitoring, not piles.

Contrast that with another hypothetical, also for illustration only: a twenty-year-old home where new diagonal cracks appear over three doors on the same side of the house in one summer, the front door starts dragging, and the brick outside shows a stair-step crack lining up with the interior cracks. That alignment — inside, outside, and function all changing together on one side — is what real movement looks like.

Tile and Grout — Brittle Witnesses

A single tile cracked in the middle of a floor, especially where something heavy was dropped or a refrigerator sits, is usually impact or a void under that tile where the setting material did not get full coverage. Tap around it with your knuckle. A hollow sound in just that spot points to an installation issue, not a slab failure.

Grout cracking in a straight line along one joint, especially in a shower or along a backsplash where tile meets a different material, is often a failed soft joint and normal differential movement. Wood, drywall, and tile expand at different rates. Builders are supposed to leave a soft joint there. When they grout it solid instead, it cracks. Annoying, yes. Foundation, rarely.

What gets my attention is a crack that runs across many tiles and through the grout, continuing from room to room, or a floor that suddenly feels uneven where tile has tented — pushed up in a ridge. Tenting can happen when tile installed tight with no room to expand gets hot and has nowhere to go, but it can also signal slab movement. Likewise, tile separating from the wall at the floor line on one side of a house while the opposite side stays tight deserves elevation measurements.

Brick Veneer — The Most Misread Crack of All

You need to know one key fact about most Texas homes built in recent decades: the brick outside is usually veneer. It is a skin, tied to the wood framing behind it with metal ties. It

does not hold up the roof by itself. That veneer sits on a brick ledge on the foundation, and it moves a little differently than both the frame and the foundation. Clay brick also expands as it absorbs moisture over years, and it expands in summer heat. If the builder did not leave enough expansion joints, vertical cracks can open near corners simply to relieve that growth.

A hairline stair-step crack in the mortar only, less than an eighth of an inch, near a corner, without breaking brick faces and without matching interior distress on that side, is often veneer movement or minor, long-ago settlement that has stabilized. Mortar is the weakest part of the wall on purpose. It is supposed to crack before the brick does, and it can be repointed.

Brick cracks that concern me are wider, break through the brick units themselves, show offset — one side pushed in or out from the other — or line up exactly with interior cracks and sticking doors on the same elevation. A crack wider at the top than the bottom suggests rotation and deserves a full evaluation. So does brick pulling away from a window frame on one side while crushing tight on the other, and a chimney leaning away from the house with a widening gap.

Never let anyone sell you foundation repair off a brick photo alone. I will not do it. I want to stand in that house, feel the floors, check the doors, read the elevations, walk the drainage, and ask about plumbing history. The brick is one witness. Never convict on one witness.

Concrete — Driveways, Patios, and the Slab Itself

Concrete cracks. That is not a slogan, it is a property of the material. As concrete cures it shrinks. That is why good builders cut control joints — planned weak lines where the crack can happen neatly. If a driveway crack follows a straight line and stays level on both sides, it is usually shrinkage doing what it was expected to do.

Driveways and patios are also not your foundation. They are thinner, they often have less steel reinforcement, they sit on soils that get wet and dry at the edges, and tree roots love them. A patio tilting toward or away from the house is a drainage and soil issue for that patio first. It matters — water needs to run away from the home — but a cracked patio does not prove the house footing has moved.

What matters in concrete is vertical displacement. Run your hand across the crack. If one side is higher than the other by a quarter inch or more and that offset is new or growing,

something underneath has moved. Also watch for wide cracks with soil washing out, hollow sounds over a large area, and interior slab cracks that show through flooring in a pattern matching wall cracks above them. Those need measurement, not guessing.

A word on costs, because homeowners ask. Repointing brick mortar, repairing drywall, or replacing a few tiles are generally in the hundreds to low thousands of dollars as a very general ballpark, depending on size and finishes, while true foundation work is a much larger project. Those are rough ranges only, not quotes — every house, access, and scope is different, and prices change. That cost difference is exactly why diagnosis has to come before repair. Fixing drywall over active movement wastes money. Putting piles under a house that only needed a plumbing repair wastes far more.

By the end of a crack inspection, I want you asking three questions. First, is there a pattern or just a single mark? Second, is it active or old and stable? Third, does the rest of the house tell the same story — doors, floors, exterior, drainage? If the answers are single, stable, and no, breathe, monitor, and make the cosmetic repair well. If the answers are pattern, active, and yes, get a measured evaluation, get a second opinion, and consider hiring a licensed structural engineer for an independent view. I am not a licensed engineer, and a good one is worth his fee when the decision is big.

Chapter 5: The Plumbing Look-Alikes — Leaks Under the Slab, Sewer Lines, and Water Where It Should Not Be

If cracks are the loudest false alarm in this business, plumbing is the sneakiest. Some of the worst foundation-looking problems I have walked into in fifty years were not caused by a footing built wrong or soil too weak to hold a house. They were caused by water going where it should not go, month after month, quietly washing out support or swelling the clay under one part of a slab while the rest of the house stayed dry.

Texas makes this worse. Much of our ground is expansive clay. Dry clay shrinks and pulls away. Wet clay swells and pushes up. A house can tolerate slow, even seasonal changes across the whole footprint better than it can tolerate one wet spot. A leak under one corner creates that wet spot. That area heaves while the edges stay put, or moving water carries fine

soil away and that area sinks. From inside, both look exactly like classic foundation settlement: doors stick, drywall cracks, floors slope, tile separates. The difference is what you fix first. If you lift a house and leave the leak, the leak will undo your work. Plumbing first is not a delay. It is the repair, or at least the first half of it.

Fresh Water Leaks Under the Slab

Your fresh water lines bring water in under pressure. In many slab homes, supply lines run under or through the slab. When one develops a pinhole or a joint fails, it does not always flood a room. It can leak slowly into the sand and soil below the concrete, twenty-four hours a day, and you may not see a drop inside for a long time.

Signs that point me toward a supply leak include a water bill that jumps without a change in how you live, the sound of water running when nothing is on, a meter that keeps turning when every faucet and appliance is off, a warm spot on the floor over a hot water line, and foundation-type symptoms centered in one area — doors sticking and cracks opening around a bathroom and the hallway next to it, while the far end of the house is fine. A mildew smell in one room, wood flooring cupping in a localized patch, and carpet that feels damp at the pad without a spill to explain it also belong on this list.

A simple meter check is a good starting point, and your water provider or a licensed plumber can walk you through it for your setup. Turn off everything that uses water, do not flush, note the meter, and check it again after an hour or two of no use. If it moved, something is using or losing water. That does not prove the leak is under the slab — it could be a toilet flapper or an irrigation line — but it proves you should find it before you price foundation work.

Finding the exact spot is a job for a licensed plumber with leak detection equipment. They listen with acoustic tools, use pressure testing, and isolate lines. I do not guess at locations, and I do not recommend tearing up floors on a hunch. Get the test, get it in writing, and keep the report. Every good foundation evaluation should ask whether a plumbing test has been done, especially when movement is localized or recent.

Hypothetical example, labeled as such: Imagine a homeowner who notices in spring that the guest bathroom door will not latch and a diagonal crack opens over it, growing over six weeks. A floor survey shows that corner of the interior is actually higher than expected, not lower — lifted, not sunk. A plumbing test finds a hot water leak under that bathroom. After the leak is repaired and soil moisture evens out over the following weeks, the door improves and the crack stops

growing. In that hypothetical case, piles would have been the wrong first move entirely. The house was being pushed up by wet clay, not dropping from weak soil.

Sewer and Drain Lines — The Slow, Dirty Problem

If fresh water leaks are sneaky, sewer leaks are patient. Drain lines under a slab carry water out by gravity, not pressure, so a broken or separated sewer line may leak only when showers run, tubs drain, or the washing machine discharges. It can go on for years. Many older Texas homes have cast iron drain lines under the slab. Cast iron rusts from the inside out. Over decades the bottom of the pipe can thin, crack, and eventually open, allowing water to enter the soil and allowing soil to enter the pipe and be carried away.

Symptoms that make me ask about drains include foundation symptoms combined with slow drains in more than one fixture, gurgling sounds, sewer odor in the house or yard, frequent backups that a simple cleaning does not cure for long, and lush green grass or unusually soft ground over the sewer path in an otherwise dry yard. Inside, look for movement centered over the main drain run — often through bathrooms and the kitchen — rather than at the perimeter footings.

The right test here is a sewer isolation test and, where appropriate, a camera inspection, performed by a licensed plumber. In a typical isolation test, the plumber blocks sections of the system and watches whether water levels hold. If a section will not hold, that section leaks. A camera then helps pinpoint breaks, bellies where a section has sagged and holds water, separated joints, and root intrusion. Keep both reports. When I evaluate a house with a failed sewer test, my advice is almost always the same: repair the sewer first, then let the soils stabilize, then re-measure the floor before deciding on any foundation work. Sometimes, after the water source is gone, the house settles back partway on its own over a season. Sometimes it does not, and foundation work is still needed — but now it has a chance to hold because the cause is gone.

Costs vary widely and I will only give a very general sense. A plumbing leak test and camera work are generally in the hundreds of dollars as a ballpark, not thousands, while an under-slab sewer replacement, which can involve tunneling under the house or breaking through floors, is a major project that can run into the many thousands. Those are rough, general ranges with many caveats — age, length of line, access, and city requirements all move the number — and they are not a quote for your home. Get written proposals

from licensed plumbers and ask what access method they propose and why.

Water Where It Should Not Be — From Above and Outside

Not all problem water comes from a pipe. Some comes from roofs, air conditioning, and yards, and it fools people because it is not dramatic. A slow drip from a condensate line, a water heater pan drain routed wrong, or a refrigerator supply line weeping behind a cabinet can wet one area for months. On a slab, that moisture works its way to the edge and into the soil. Outside, a gutter dumping thousands of gallons a year off a roof corner right next to the foundation creates exactly the wet-spot problem a plumbing leak creates, just from above ground.

Walk your house after a hard rain. Where does the water go? Does it pond next to the wall? Does a downspout discharge within a foot or two of the footing? Is the soil against the house sloped toward the house instead of away from it? Are flower beds built up so high they trap water against the brick? I have seen foundation-looking cracks on one side of a house explained entirely by one downspout and a bed that acted like a dam.

Here is the order of operations I recommend to every homeowner, and it is the heart of this chapter. First, rule out active water. That means a plumbing test when symptoms are localized, recent, or centered on wet rooms, plus a walk around the exterior for drainage and sprinkler issues. Second, fix the water source completely and verify the fix with a retest. Third, give the soil a little time if your evaluator and plumber advise it, and monitor cracks and doors with dated photos. Fourth, re-measure the floor elevations and decide on foundation work only on the new picture, with the cause removed. If foundation repair is still needed at that point, you will hear from reputable local foundation companies about pressed concrete piles — segments of concrete pressed into the ground to support the footing. Whatever system is proposed, ask how the plumbing repairs and the foundation plan fit together, and never sign a plan that ignores a known active leak.

I am not a licensed plumber and I do not do plumbing tests. Hire one. I am not a licensed engineer either — my authority, such as it is, is fifty years of field experience seeing what water does to Texas houses. When a case is unclear, a licensed plumber for the pipes and a licensed structural engineer for an independent structural opinion are money well spent, in that order, before major work.

Water is patient. It does not need to be dramatic to move a house. Before you decide your foundation has failed, make sure you are not looking at a plumbing problem wearing a foundation costume. In my experience, a good share of the time, that is exactly what you are looking at — and fixing the water first is the kindest thing you can do for both the house and your wallet.

Chapter 6: Roof, Framing, and the House Above — Truss Uplift, Load, Remodels, and Signs That Start Upstairs

Most homeowners, and frankly a lot of contractors, start a foundation investigation by staring at the ground. I start by looking up.

A house is a system. The foundation holds up the walls, the walls hold up the ceiling and roof, and the roof pushes and pulls on the walls as wind, heat, moisture, and load change through the year. When something above the foundation moves, it often writes its story on the same drywall and brick that foundation movement writes on. Ceilings separate from walls. Corners crack. Doors in upstairs bedrooms stick while downstairs doors work fine. If you only read the ground floor, you will misread a good number of these houses.

In fifty years I have been called out for foundation failure and found, instead, roof trusses doing what trusses do in winter, a remodel that quietly removed a wall the house was counting on, a heavy new roof loaded onto framing never meant for it, and water in an attic slowly rotting the plates the roof sits on. None of those are fixed from underneath. All of them can look, at first glance, like the slab is moving.

Truss Uplift — The Winter Crack That Comes and Goes

Many Texas homes built since the nineteen seventies use manufactured roof trusses instead of a traditionally framed roof. A truss is a triangle. It has top chords that form the roof slope, a bottom chord that forms your ceiling, and webbing in between. In winter, the top chords sit in cold, dry attic air near the roof deck, while the bottom chord is buried in insulation and stays warmer and holds more moisture from the house below. Wood shrinks and expands with moisture and temperature at different rates. The truss responds by arching slightly — the center of the bottom chord lifts up off the interior partition walls below it.

That lift is called truss uplift, and it makes one of the most recognizable look-alike patterns in this book. The ceiling pulls away from the top of interior walls near the center of the house, opening a horizontal gap along the ceiling-to-wall joint, sometimes wide enough to slip a credit card into. Corners crack. In bad cases you can see a shadow line where the ceiling has risen. Then, come summer, when temperatures and moisture even out, the truss relaxes and the gap closes — sometimes almost completely.

Homeowners understandably hate this. They tape and paint it in spring, it looks fine all summer, and it opens again next January. They conclude the house is moving up and down on its foundation. Usually it is not. Clues that point to truss uplift instead are that the separation happens at interior walls, not exterior walls; that it is seasonal and repeats at the same time of year; that floors show no matching slope or elevation change; that exterior brick shows no new matching crack; and that the problem is often worst after a very cold spell. Exterior walls are load-bearing for the trusses — the truss ends sit on them — so the ceiling stays attached there and lifts in the middle of the span. That center-only pattern is a strong tell.

Truss uplift is generally a cosmetic and craftsmanship issue, not a foundation failure, and the usual remedies are carpentry and drywall remedies, not piles. Builders who expect it use special clips that let the truss move without taking the drywall with it, and they float the ceiling drywall corners near interior partitions instead of fastening them tight right at the edge. In an existing home, a carpenter or good drywall contractor can often re-detail that joint so the movement happens behind a trim piece or flexible joint instead of tearing tape every winter. Do not let anyone talk you into lifting the perimeter of your house to close a center ceiling gap that opens every winter. Measure the floor first. If the floor is stable, look up, not down.

Hypothetical illustration only: a home where every January a crack opens along the hallway ceiling on both sides, wide enough to notice across the room, and every April it closes to a hairline. Floors measure the same in January and July, doors work the same year-round, and the brick is unchanged. That seasonal, interior-only pattern is truss uplift until proven otherwise.

Load Changes — Heavy Roofs, Stone, and Second Stories

The load change I ask about first is the roof itself. A home that originally carried lightweight composition shingles and later received a second layer of shingles on top of the first, or

was re-roofed with much heavier tile or stone-coated products without anyone checking the framing, is carrying weight its trusses or rafters may not have been sized for. Signs of an overloaded roof system include rafters or trusses sagging between supports, a roofline that dips in the middle of a span when you sight along it from the yard, ceilings that bow downward, and new cracks radiating from the ends of long ceiling spans. That is a framing and structural question, not a slab question, and it is exactly the kind of case where I tell a homeowner to hire a licensed structural engineer. I have fifty years of field experience and I know what sagging looks like, but sizing members and certifying a fix for an overloaded roof is an engineer's work, and a good roofer will tell you the same.

Remodels That Remove Support

The remodel look-alike I worry about most is the removed wall. Modern taste loves open plans. A homeowner or an inexperienced remodeler knocks out the wall between kitchen and living room — not knowing, or not checking, whether that wall was bearing a load from above. Some interior walls are just partitions. Others carry ceiling joists, roof load, or an upper floor. Remove a bearing wall without installing a properly sized beam and posts that carry that load down to adequate support, and the ceiling above begins to sag, slowly at first. Doors beside the opening rack, drywall cracks appear at the corners of the new opening, and a long crack may run along the ceiling where the joists now bend. From the couch, it can look like the floor dropped. Often the ceiling is what dropped.

Other remodel traps include cutting through truss chords or webs to make attic storage or run new ductwork — a truss is an integrated triangle and cutting any member weakens the whole thing — notching floor joists deeply for plumbing runs, and adding a bathroom upstairs with a heavy tub over joists sized for a bedroom. I have also seen attic conversions where flooring and furniture went in over ceiling joists that were only ever meant to hold drywall and insulation.

Signs That Start Upstairs

Learn to read floor by floor. Foundation movement at the perimeter tends to announce itself downstairs first and on the exterior — brick, foundation edge, first-floor doors, garage separation. Problems that start upstairs tend to show a different map: second-floor doors sticking while first-floor doors are fine, cracks only in upstairs drywall, a bouncy or sloped feeling confined to one upper room, ceiling stains and soft drywall under a roof leak, and attic findings that explain everything once someone actually looks.

So let someone look. An attic inspection, done safely by a professional who knows where to step, can reveal separated truss plates, cracked rafters, water staining and rot at the top plate, disconnected ducts dumping moist air into the attic, and daylight showing through roof damage. A roof inspection can reveal failed flashing at a chimney or wall intersection that has been wetting the framing inside that wall for years, causing the drywall inside to crack in a pattern a homeowner reasonably blamed on the foundation.

Composite hypothetical, explicitly hypothetical and not a real customer: Consider a two-story home where the only complaints are an upstairs bedroom door that sticks in summer, a crack in that bedroom's ceiling, and a faint stain that grows after wind-driven rain. Downstairs is clean, elevations are even, brick is sound. An attic and roof check finds failed flashing on that side and a truss with a separated connector plate above that room. The repair list is roofing, carpentry, and drywall — no foundation work at all. I offer this composite because this pattern, in different details, is one I have seen in substance many times.

Here is how I sort an upstairs-first case in the field. I check whether the symptom map is top-heavy or bottom-heavy. I ask about seasons — truss uplift loves winter, roof leaks love storms, foundation soil movement often tracks drought and watering patterns. I ask about changes — new roof, removed wall, new tile upstairs, attic storage. I measure the ground floor elevations anyway, because assuming is how mistakes happen, and I look at the exterior. If the ground floor is stable, the exterior is quiet, and the story upstairs is loud, I say so plainly and point the homeowner to the right trade — roofer, carpenter, or engineer — instead of selling foundation work the house does not need. If pressed concrete piles are ever warranted on a home, it is because measured foundation movement, not an upstairs symptom alone, proved it.

A house talks from the roof down and from the ground up at the same time. Your job as a homeowner is not to become a builder. It is to insist that whoever evaluates your home listens in both directions, measures instead of guessing, and fixes first whatever is actually causing the movement — even when that cause turns out to be above your head, not under your feet. That insistence will save more Texas homes from unneeded foundation work than any single tool I own.

Chapter 7: Water Outside, Blame Inside — Drainage, Sprinklers, Pools, and Grade Problems That

Mimic Movement

Most of the houses I walk into do not start with a foundation problem. They start with a water problem that has been going on so long that the house is telling the story indoors.

A door sticks. A crack opens over a window in the back bedroom. A tile floor feels uneven near the kitchen. Inside, that all looks like movement. Outside, if you take your time, you often find the real cause in the dirt, the gutters, the sprinkler heads, and the slope of the yard.

I have spent fifty years working around Texas foundations, and Texas soil teaches this lesson fast. Our clay swells when it gets wet and shrinks when it dries out. That is normal to a point. What causes trouble is when one side of a house stays wet while the other stays dry. One side lifts or stays supported, the other pulls away and drops. The house does not care why the moisture is uneven. It just reacts to it.

That is why drainage belongs near the top of any honest foundation conversation. Before anyone talks about repair, you need to know where water goes when it rains, where it goes when the sprinklers run, and where it sits afterward.

Start With the Rain

Rain is the biggest water source most homes will ever see, and the roof gathers a surprising amount of it. A modest roof in a hard Texas rain can shed thousands of gallons in an hour. If that water has no clear path away from the house, it will find the foundation.

Look up first. Are there gutters, and are they actually working? A gutter full of leaves, sagging in the middle, or missing a downspout is not a gutter system. It is a waterfall system. It dumps water in one place, usually right against the wall, and that water soaks down along the foundation.

Look at the downspouts next. Where does each one end? In too many yards, a downspout ends six inches from the house and pours every storm straight into the flower bed against the slab. The bed looks nice. The soil underneath stays soaked, while a few feet away the soil is on a completely different moisture schedule. Over months and years, that difference can show up inside as a crack or a door that will not latch in the summer and works fine in the winter.

A simple fix here helps more people than any sales pitch ever will. Get roof water into a pipe or a well-shaped swale and carry it well away from the house, out to where it can spread out without ponding. Extensions should not dump onto a sidewalk that slopes back toward the house, and they should

not end in a low spot. Water follows grade whether we planned it or not, so the plan has to give it somewhere better to go.

After a rain is the best time to learn your yard. Walk it while the ground is still wet. Where does water stand an hour after the rain stops? Where is it still standing the next morning? A puddle in the middle of the lawn is an annoyance. A puddle against the foundation is information. Take dated photos. They are worth more than a memory that fades by the next dry spell.

Grade: The Quiet Slope That Decides Everything

Grade is just the slope of the ground. Good grade falls gently away from the house, so water moves away instead of toward. Bad grade does the opposite, and bad grade is common.

It happens slowly. Soil settles against the house. Mulch and flower beds get built up until the bed is holding moisture against the wall. A sidewalk tilts back just enough to send water toward the garage instead of toward the street. A neighbor raises a yard or adds a patio, and now your side yard drains differently than it did five years ago.

None of that looks dramatic. There is just a house that gets a little extra water on one side, storm after storm, while the other side gets almost none. Inside, the homeowner sees a crack widen each spring and close each fall, and it is easy to assume the worst.

When I look at a house, I want to know if the ground right at the wall is higher than the ground ten feet out, if soil or mulch is piled over the top of the slab edge, and if a flat patio is acting like a funnel. Correcting grade is not glamorous work. It is shovel work, and sometimes reworking a bed or cutting a shallow swale so water has a path. It is also some of the cheapest stability a homeowner can buy, because it treats the cause instead of chasing the symptom.

One caution matters. Do not solve a drainage problem by starving the soil of all water. In a Texas drought, dry clay can shrink and pull away from a foundation just as surely as soaked clay can swell. The goal is not wet, and not bone dry. The goal is even and moderate, as much as our weather allows, around the whole house.

Sprinklers: The System That Waters One Side More Than the Other

Irrigation is the second place I look, and it surprises people. A

well-tuned system helps keep moisture more even. A neglected system can do the opposite.

Walk the system while it runs. Look for a head that has tilted and is spraying the wall instead of the lawn. Look for a head broken off and bubbling like a small fountain next to the foundation. Look for a zone that runs twice as long as it needs to because no one has adjusted the timer since the sod was new. Look for drip lines in beds against the house while the opposite side, with no beds and no drip, bakes in the afternoon sun.

Leaks in irrigation lines are sneaky for the same reason plumbing leaks are sneaky. The water goes into the ground where you cannot see it, a little at a time, for a long time. The lawn above may look greener in that one spot, which most folks read as a good sign. Underneath, that soil may be staying far wetter than the soil ten feet away.

A hypothetical example shows the pattern. Imagine a composite homeowner — not a real customer, just a typical picture built from many similar houses — who notices a diagonal crack over the living room door every summer. An irrigation head on that side has been spraying the brick and soaking the bed for two seasons. The other side has no irrigation at all. Fixing the head and evening out the watering does not make the crack vanish overnight, but over the next season it stops growing. The house was not failing. It was reacting to uneven water.

Ask yourself a plain question: if you drew a circle around your house, would every side get roughly the same water in a week, from rain, sprinklers, and beds combined? If the honest answer is no, you have found work to do before you have found a reason to worry about major repair.

Pools, Patios, and Other Big Flat Things

Pools deserve their own word because they change drainage in several ways at once. A pool holds a large body of water close to the house, has plumbing lines underground, and has a deck that sheds rain in a particular direction. A pool that leaks, even slowly, can keep one section of soil wet in a way that never matches the rest of the yard. A deck that slopes toward the house can send every splash and storm across to the foundation. None of this means a pool is a bad idea — plenty of homes with pools sit fine for decades. It means that when movement shows up on the pool side first, the pool area is one of the first places to check, not the last.

Check the simple things. Does the water level drop faster than evaporation alone would explain? Does one patch of ground near the pool stay soft when the rest of the yard is

dry? Does the deck drain toward the street or toward the wall? If you suspect a leak, a pool professional can test it properly.

The same thinking applies to any new flat work. A new driveway or patio changes where rain goes. If cracks started in the months after new flat work went in, write that timing down. Timing is evidence.

What to Fix First, and What to Watch

Here is the order I recommend. First, get roof water away from the house. Second, correct grade that sends water toward the wall or holds it there. Third, repair and balance the sprinkler system so moisture is as even as you can make it. Fourth, rule out active leaks — pool, irrigation, and plumbing — with real testing when the signs point that way. Then watch the house through a season with those corrections in place.

Watching is not doing nothing. It means measuring and writing things down, which is where Chapter 9 will take you. A crack that stops changing after drainage is corrected has told you something important.

There will still be houses where movement is real, ongoing, and beyond what drainage work can settle. In those cases, an honest evaluation — and, where the signs call for it, a licensed structural engineer hired by you — is the right next step before any repair plan. When repair is truly needed, the method I install and stand behind is pressed concrete piles, driven to stable support to lift and support the affected area. That decision should come after the water story is understood, not before it.

Water outside causes a lot of blame inside. Slow down, walk the yard wet and dry, and fix the water first. You may find the house was asking for a shovel and a sprinkler wrench all along, not a major repair.

Chapter 8: Trees, New Construction, and Honest Settling — Movement That Is Real but Is Not Failure

Not every movement is a drainage problem, and not every movement is a failure. Some movement is real, measurable, and still not a reason to panic. Houses settle. New construction finds its footing. Big trees drink a great deal of water. Understanding those honest causes keeps a

homeowner from spending serious money on a house that is behaving the way houses have always behaved.

This chapter is about the middle ground. The crack is really there. The floor really does slope a touch in one corner. But the cause is a tree doing what trees do, or a young house doing what young houses do, or fill soil compacting the way it does if it was not compacted well at the start. Real does not always mean failing, and failing is a word that should be earned by evidence over time, not applied on the first worried afternoon.

Trees Drink More Than You Think

A mature oak in Texas is a beautiful thing, and it is also a very large pump. On a hot day, a big tree can pull a remarkable amount of water out of the ground. Its roots spread far beyond the drip line most folks picture — often as wide as the canopy — and they do not stop politely at the edge of a slab.

When a large tree sits close to one corner, that corner lives on a different moisture plan than the rest of the home. In a dry summer, the tree takes what it needs, the clay near that corner dries and shrinks more than the clay elsewhere, and that corner can drop slightly. Then the rains come, the soil rehydrates, and some of that drop recovers. The homeowner sees a crack that opens in August and nearly closes in November and thinks something is broken.

Sometimes something is only thirsty.

That does not mean every tree near a house must come out. I am fond of shade in Texas, and removing a healthy mature tree is a permanent decision with real costs — to the yard, to the cooling bills, and to the value of the place. It also does not fix anything overnight. When a large tree is removed, the soil it had been drying for years slowly takes on water again and can swell, which can heave the very corner everyone was worried about. Tree decisions should be slow, informed, and, where a tree's health is in question, made with a qualified arborist.

What can a homeowner do first? Start with distance and size. How close is the trunk to the foundation, and how large is the species at maturity — not how large the little tree from the nursery looks today? A small ornamental fifteen feet away is a different story than a fast-growing shade tree six feet from a corner. Write down what is planted where. Future you, reading cracks two summers from now, will be glad you did.

Next, think about even moisture again, because the tree problem is really a moisture-difference problem. Consistent, moderate watering on the dry side during a drought can

reduce how hard the clay shrinks near a tree. Some homeowners use soaker hoses a short distance out from the foundation during dry spells, run on a modest schedule, with the goal of keeping moisture steadier — not soaking. Local water restrictions always come first. The goal, as always in our clay, is even, not wet.

Root barriers are sometimes part of the conversation. A properly installed barrier can redirect roots in some situations, but it is not a do-it-yourself afternoon project, and cutting major roots can harm or destabilize a tree. Get an arborist's view before anyone trenches near a tree you want to keep.

Here is a hypothetical picture, labeled as such. Picture a composite house, built from many similar visits and not any one real customer, with a large live oak off the back left corner. Every dry summer, a hairline crack opens in the brick on that corner and a back door gets snug. Every wet spring, both ease. Elevation readings taken over two years show that corner moving seasonally within a small range and returning, not marching steadily downward. That pattern — movement that comes back — points to moisture and the tree, not to a foundation in steady failure. The plan for that house is moisture management and continued measuring, not immediate repair.

Compare that with a corner that drops a little more each year and never recovers, wet season or dry. That pattern is different, and it deserves a full professional evaluation and, where appropriate, an independent structural engineer's opinion. Same crack family, different story, told by time.

New Construction: The First Years Tell the Truth Slowly

A brand-new house is not a finished, settled thing on move-in day. It is a heavy structure newly placed on soil that was recently dug, filled, graded, and compacted. Some settling in the first few years is expected, and much of what worries new homeowners is the house and the ground getting acquainted.

Fill soil is the key idea. Where a builder cuts and fills a lot, the filled areas must be compacted properly or they will compact later under load and moisture changes — with the house sitting on top while they do it. Minor settling can show up as small drywall cracks at the corners of doors and windows, nail pops, and caulk joints that open at counters and tubs. Much of that is cosmetic and common, and builders expect a round of touch-ups in the first year for exactly this reason.

New homes also dry out. Framing lumber shrinks as it dries in place, which can open small gaps that have nothing to do with the slab. Fresh concrete itself shrinks slightly as it cures. A fine crack in a garage slab in the first year is very often that curing and drying story, not a foundation giving way.

How do you tell honest early settling from a real problem? Pattern and progress. Settling that is finishing slows down. Cracks appear, get touched up, and mostly stay touched up. A problem that is still active keeps moving — the same crack reopens wider, doors that were adjusted go out again, and new signs appear in a connected pattern on one side. Keep a written record from the first year on. If you ever need to talk with a builder under a warranty, or with an engineer later, that dated record is gold. Memory argues. Paper does not.

If a new home shows larger signs early — wide cracks, a visibly sloping floor, doors badly out of square across several rooms on one side — do not let anyone wave it off with the word settling alone. Ask for measurements, ask for them in writing, and consider hiring your own licensed structural engineer, one who works for you and not for the builder or a repair company. An independent set of eyes early is far cheaper than a dispute later. That advice holds for any age of home, but it matters most while warranties are still in force and timelines still matter.

One more point deserves plain words. Landscaping on a new lot is often the last thing finished and the first thing changed by owners. New sod, beds, a fence, a patio poured the first summer — each can redirect water. If a young house develops symptoms after the yard changed, suspect the yard change first. It is the newest variable, and newest variables are guilty until proven innocent in my book.

Additions, Remodels, and the Seam Between Old and New

Additions create a special kind of honest movement. The original house may have settled years ago and finished. The addition is new, on its own foundation, and will do its own early settling on its own schedule. Where the two meet, small cracks and slight separations at the seam are common, because two structures of different ages rarely move in perfect unison.

That does not give every addition crack a free pass. A seam that keeps widening, or an addition floor dropping away year after year, needs professional eyes. But a stable hairline at the joint, unchanged across seasons, is usually the two buildings being honest about being two buildings. Measure it, photograph it, and let time grade it.

Remodels can also unmask old, stable conditions. Pull up old flooring to lay new, less forgiving flooring, and a gentle slope that was always there suddenly announces itself. The floor did not move that month. The covering changed. Before blaming recent movement, ask whether the condition is newly happened or newly noticed. Those are very different problems with very different price tags.

So What Counts as Failure, Then?

Failure, as I use the word in the field, means the foundation is no longer doing its job of supporting the house in a stable, serviceable way, and the movement causing damage is ongoing. Floors out of level beyond what the house can tolerate, doors and windows that progressively will not operate, cracks that grow steadily in a connected pattern — when those signs march together, in one direction, over time, the house is asking for more than patience.

Notice how many of those phrases depend on time. Progressively. Steadily. Over time. A single visit sees a snapshot. This is why I push homeowners to keep simple records, and why I am cautious about anyone who looks at one crack for ten minutes and pronounces a final verdict with complete certainty. When pressed concrete piles are the right answer, they are a good answer: sections of concrete driven deep to steadier support, used to lift and hold the affected part of a slab. But they are an answer to confirmed, ongoing failure, not to a tree's summer thirst, not to a young house finishing its settling, and not to a crack that has not changed in five years.

Real movement deserves respect. It does not always deserve repair. Learn which kind you have, and you will spend your money once, on the right thing, in the right order.

Chapter 9: Measure Before You Guess — Elevation Readings, Crack Logs, Photos, and a Simple Home Record

Guessing is expensive. Measuring is cheap. That may be the most useful sentence in this whole book.

You do not need costly instruments to keep a good record on your own house. You need a notebook or a folder on your phone, a few simple tools, the same spots checked the same way each time, and the patience to let a few months of honest notes do what no single opinion can do — show whether your house is moving, how much, in which direction, and how fast.

Fifty years in the field has taught me that the homeowner with records almost always makes the better decision. They spend less, they worry less, and when they do hire help — a foundation professional, a plumber, or a licensed structural engineer for an independent opinion — they hand that person real evidence instead of a worried summary. This chapter shows you how to build that record, step by step.

Elevation Readings: Knowing Whether the Floor Is Actually Moving

When professionals evaluate a slab, one of the first things they do is take elevation readings — measurements of floor height at many points, compared against a reference point. The result shows how level the floor is and where it sits high or low. Done once, it is a snapshot. Done again months later the same way, it becomes a story.

A professional reading uses a specialized instrument and produces numbers in fractions of an inch across rooms. If you hire an evaluation, ask for the readings in writing, ask where the reference point was, and keep the diagram. That paper is yours. It lets a second professional, or an engineer, check the work later instead of starting from zero.

At the homeowner level, you can gather simpler information yourself. A long level — four feet is handy — laid on hard floors will show obvious slopes and humps. A marble on a hard floor will find a slope faster than your feet will, though it will also find slopes that have existed since the house was built, so treat it as a clue, not a verdict. Check the same places each time and write down what you find: marble rolls slowly toward the hall from the center of the back bedroom, same as in March. Change is the signal. Sameness is a signal too, and a comforting one.

Here is the caution that keeps home readings honest. Floors were rarely built perfectly level. A floor that slopes a half inch across a room may have sloped that way for thirty years. That is why a single reading, yours or anyone's, cannot prove movement. Only comparison over time proves movement. If anyone tells you a house is failing based on one set of numbers with no history, slow the conversation down and ask what those numbers are being compared against.

Keep professional elevation sets, dated, in your home record. Two sets taken a year apart by the same method are worth more than five opinions offered from memory.

The Crack Log: Small Notes That Answer Big Questions

Cracks are the symptom homeowners see most, so cracks are what we will track best. Pick the cracks that concern you — usually no more than a handful — and give each one a number and a home. A simple entry works: Crack 1, brick over garage, left side. Crack 2, drywall over master bedroom door.

For each crack, record four things. First, the date. Second, the width, in plain terms you can repeat. A crack-width gauge card costs very little, but you can also compare against familiar references the same way each time — hairline, about the thickness of a dime's edge, wide enough to fit a pencil tip. Precision matters less than consistency. Third, the length. A fine pencil mark across the crack, dated in tiny numbers beside it, is the oldest trick in this trade: if the crack moves, the two halves of your mark will no longer line up. Mark the end of the crack with a small dated line too, so you can see if it is growing longer. Fourth, note the season and recent weather — drought month six, or two weeks after heavy spring rains. In Texas clay, the season is part of the measurement.

Add one line for doors and windows. Which doors stick, which latch fine, and did that change since the last entry? Doors are sensitive instruments you already own. A house where the same door sticks every August and frees every November is describing a seasonal cycle. A house where a door stuck a little last year and will not close at all this year is describing progress. Your log separates those two stories a year later.

Check your log once a month, and at any big change in weather, like the end of a long drought. Five minutes with a pencil beats an hour of worrying, because at the end of six months you will not be asking whether the crack looks bigger. You will know.

Photos: Take Them Like You Mean to Compare Them

A photo only helps later if it can be compared to another photo. That means taking it the same way each time. Stand in the same spot. Frame the same area. Get one picture from a distance that shows where the crack lives in the room or on the wall, and one close picture that shows the crack itself, with a coin or a ruler in the frame for scale. Phones stamp photos with dates automatically, which is helpful, but rename or note your key photos anyway so they are easy to find: Crack 1, March, and Crack 1, September should sit side by side in your record.

Photograph more than cracks. Photograph the yard after a hard rain, showing where water stands. Photograph the gap, if any, between soil and foundation in a drought. Photograph

sprinkler heads running if you suspect one is flooding a bed. When a professional of any trade visits, these dated photos answer questions that dry ground on visit day cannot.

One practical warning. Phones change, and photos die with them. Back up your house record the way you back up family photos, or keep the paper version in a drawer with your home papers. The record only protects you if it survives until you need it — often at resale, in a warranty discussion, or when an engineer asks the best question in this business: when did this start, and how has it changed?

Putting It Together: Your Simple Home Record

Now gather it all in one place. One folder, paper or digital, labeled with your address. In it: your elevation diagrams, with dates and company names; your crack log; your photos; a list of your trees with sizes and distances from the house; notes on drainage, sprinkler, plumbing, and pool work, each dated; and a one-page timeline of when you first noticed each concern.

That timeline deserves care. Write what you know and mark what you are unsure of. First noticed the back door sticking in the summer after the patio was poured is a useful, honest entry, and the patio date may turn out to be the most important fact in the folder. Keep sellers' and inspectors' paper with it.

When you bring in help, bring the folder. Watch how a professional responds to it. The good ones light up a little, because you have saved them guesswork and made it harder for anyone to sell you the wrong job. If repair is recommended, ask the questions this book has been building toward. What is moving, and what is your evidence that it is still moving? What did the elevations show, and compared to what? Have drainage, leaks, and trees been ruled in or out? Is the recommendation pressed concrete piles for the affected area — the method I use and the only foundation repair method this book covers — and exactly which areas would be supported and which would not? And the question that protects you most: what happens if we measure for another season first? A confident, honest professional can answer that one without flinching, because sometimes the right answer really is to watch, and sometimes the record will show clearly that waiting only lets damage grow.

There is also a time to bring in a licensed structural engineer who works only for you, with no repair to sell. If your record shows steady, one-direction movement, if signs are large or spreading, if you are buying or selling and the foundation is in

dispute, or if two professionals tell you opposite stories, an independent engineer is money well spent. Bring the folder. Engineers, in my long experience, respect records even more than I do.

Let me close with a hypothetical that ties it together, clearly labeled as an invented composite. A homeowner notices cracks, fears the worst, and instead of signing the first big proposal, spends a season measuring. The log shows the cracks breathing with the seasons and returning, the photos show a downspout dumping at the worst corner, and a sprinkler repair plus a downspout extension later, the next season's log shows half the movement of the year before. That homeowner fixed the cause for the price of a nice dinner out, and has the paper to prove the house is stable. Another composite homeowner measures and finds the opposite — steady growth, wet season and dry — and signs a repair proposal with confidence, knowing exactly why. Both homeowners won. The measuring is what did it.

Your house talks. Cracks, doors, floors, and yards are its words. Measure before you guess, write it down, and let time tell you the truth. When the truth says the foundation truly needs support, act on it without delay. When it says water, trees, or honest settling, fix those things and keep your record going. Either way, you will be the homeowner who decided from evidence — and that is the homeowner who rarely pays twice.

Chapter 10: The Right Professional in the Right Order — Plumber, Structural Engineer, and Foundation Contractor

By the time most homeowners call for help, they have already lived with the worry for months. A crack has grown. A door has gotten harder to close. A floor feels a little different underfoot. Friends have offered opinions. A neighbor has told a story about his house. The internet has offered ten more stories, all different, all confident. What the homeowner needs at that point is not another opinion. He needs the right professional, in the right order, answering the right question.

That order matters more than most people realize. Call a foundation contractor first when the real problem is a leaking drain line, and you may get a foundation bid for a plumbing problem. Call a plumber first when the house has truly settled several inches on one corner, and you may pay to fix pipes that are about to move again. Call nobody and just patch the drywall, and you may cover up the one clue that would have

told you what was happening underneath. The goal of this chapter is simple: help you line up the help in the sequence that saves money, saves time, and leads to a repair that lasts.

Start with what each professional actually does, because titles get tossed around loosely in Texas.

A licensed plumber finds and fixes water where it should not be, and water that cannot get where it should go. For foundation questions, the plumber's most important work is testing. A hydrostatic test checks whether the drain system under the slab holds water or loses it. An isolation test narrows a leak down to a section of line. A camera run shows breaks, bellies, roots, and separated joints inside the pipe. Fresh water lines can be pressure tested as well. None of that work lifts a house or levels a floor, and a good plumber will not pretend it does. What it does is answer a question no one can answer from the surface: is water escaping under this house, and if so, where?

That answer changes everything. Texas clay swells when it gets wet and shrinks when it dries. A slow drain leak can feed one area of clay month after month until that area heaves upward while the rest of the house stays put. From inside the living room, heave and settlement can look almost identical — cracks, sloping, stuck doors. The treatment is completely different. You do not want to press piles under a house that is being lifted by wet clay from a leak until that leak is found and fixed and the soil has had a chance to settle toward normal. I have spent fifty years around foundations, and one of the most consistent lessons in that time is this: water first, structure second.

That is why, in a large share of cases, the plumber belongs early in the order — sometimes first. If you have a sudden change in the house, if one bathroom has a history of backups, if you smell sewer gas, if your water bill jumped without explanation, if a wet spot keeps returning, or if movement seems centered over a bathroom, kitchen, or laundry room, get the plumbing tested before you sign anything structural. Ask for the test results in writing. Ask which lines were tested, what held, what failed, and where the camera went. A test that is only described over the phone is hard to use later when you are comparing advice from three different people.

Next comes the independent structural engineer. Let me be plain about my own place here. My authority is field experience — fifty years of hands-on work around Texas foundations, seeing what moved, what held, and what failed after somebody else tried a shortcut. I am not a licensed engineer, and I do not claim to be one. An engineer brings something different to your house: formal training in

structural analysis, a license from the state, and — when you hire him independently — no stake in selling you the repair.

That independence is the key word. Hire an engineer who works for you, not one who is sent out as part of a sales call. An independent engineer will measure floor elevations across the house, look at the pattern of cracks and movement, examine the exterior, ask about plumbing, drainage, trees, and history, and give you a written report that says what he believes is moving, how much, and what kind of repair, if any, is appropriate. He may tell you the house is within normal tolerance and needs monitoring, not piles. He may tell you the movement is real and exterior support is needed on one side. He may tell you plumbing work has to come before any lifting discussion at all. Because he is not selling the job that follows, his "you do not need us yet" carries real weight.

When is an engineer worth the fee? Almost always when the numbers are large, when two contractors have given you opposite answers, when you are buying or selling the house, when movement is severe or uneven, when interior support is being proposed, or when you simply want a referee before you commit. Think of his report as a map. Contractors can still disagree on details, but a good map keeps everybody arguing about the same house instead of three different imagined houses. Bring that report to every contractor you talk to, and watch how each one responds to it. A contractor who reads it carefully and explains where he agrees or differs is showing you how he thinks. A contractor who waves it off without reading it is showing you something too.

Then comes the foundation contractor — and this is where his experience should be used for what it is best at: judging buildability, access, sequence, and execution. A good contractor walks the property with the elevation readings and the plumbing results in hand. He looks at where support is needed, how crews will reach those spots, what landscaping, flatwork, and utilities are in the way, and whether the house is likely to respond well to a lift or should be stabilized where it sits. He explains the limits out loud. Lifting an older slab back toward its original position is not always wise or even possible without damaging finishes, and an honest contractor will say so before the work starts, not after.

Notice the order that emerges from all of this. In many houses it runs like this in plain terms: rule out active plumbing leaks, get an independent reading of the structure if the picture is unclear or the stakes are high, and then get foundation bids based on the same facts. That is not a rigid rule for every house. If a corner has visibly dropped, a beam is exposed and clearly unsupported, and there is no sign of a leak, a contractor's evaluation may reasonably come first and the engineer second for confirmation. If a drain is actively

backing up into the house, the plumber is not first in a sequence — he is emergency help, today. Use the order as a way of thinking, not as paperwork. The principle underneath it never changes: do not pay to repair an effect until you have checked the cause.

A few practical habits will protect you while you gather these professionals. First, collect paper. Elevation diagrams, plumbing test results, engineer reports, photos with dates, and written bids that state how many support locations are proposed, where they go, and what the goal of the lift is. Verbal promises are hard to remember six months later and impossible to compare side by side. Second, ask every bidder the same questions. What happens if we find broken plumbing during the work? What is included in backfill and cleanup? Are permits handled? What does the warranty actually cover, in writing, and who owns it if you sell the house? Third, beware of pressure. Real foundation movement did not happen overnight, and in the great majority of cases it will not become a catastrophe this weekend because you took three days to get a second opinion. A hypothetical example makes the point: imagine a homeowner — this is a composite example, not a real customer — who is told on a Friday that he needs a large job signed by Monday or the price doubles. That deadline is a sales tool, not a structural fact. Slow down.

Also watch for the opposite problem: the professional who answers questions outside his trade with total certainty. A plumber can tell you a line failed. He should be cautious about telling you exactly how many piles you need. A contractor can tell you a wall is out of plumb. He should be cautious about clearing your drain system without a test. I try to hold myself to the same rule. Field experience teaches a man a lot about patterns, but a camera inside a pipe and a licensed engineer's measurements are facts of a different kind, and a homeowner is better served when each man respects the edge of his own work.

Finally, remember that the cheapest first step is often the most valuable one. A plumbing test costs far less than a foundation job. An engineer's report costs far less than lifting the wrong side of a house. Even a contractor's honest evaluation that ends with "fix your drainage and watch this for a season" is worth money, because it kept you from buying a repair you did not need. The right professional in the right order is not about hiring three people for every crack. It is about making sure the person you do hire is answering a question that has already been narrowed down by facts. When that happens, the work that follows is smaller, clearer, and far more likely to be the last time you pay to solve that particular problem.

Chapter 11: When It Really Is the Foundation — Pressed Concrete Piles Driven to Refusal, Step by Step

Sometimes, after the plumbing has been tested, the drainage has been looked at honestly, and the elevations have been measured more than once, the answer is the one the homeowner was hoping not to hear: it really is the foundation. A side has settled. A corner has dropped. The movement is not cosmetic, it is not a single dry season, and it is not going to correct itself. When that verdict is solid, the next question is how the house gets supported — and in my work, that answer is pressed concrete piles, driven to refusal. This chapter walks through that method step by step, in plain language, so you know what the crew is doing at your house and why each step matters.

First, what a pressed concrete pile actually is. Picture a stack of solid, cylindrical concrete segments, each about a foot long and about six inches across, pressed one after another deep into the ground directly under the foundation beam. The segments are driven by a hydraulic ram that uses the weight of your house itself as resistance. Segment follows segment, down through the soft or shifting upper clay, until the stack reaches material firm enough that it will go no farther under that pressure. That stopping point is what we call refusal. It is not a depth picked from a chart and it is not a number promised in a sales pitch. Refusal is the ground itself saying, under load, "this is where I hold." One location at your house might reach refusal shallower than another a few feet away, because soil is not uniform — and that difference is exactly why pressing to refusal matters more than pressing to an arbitrary depth.

Before any digging starts, there is a plan. The contractor lays out pile locations along the affected beam, usually spaced several feet apart based on the elevation readings, the engineer's report if you have one, and the pattern of settlement. On a typical exterior job the locations follow the settled side and wrap around an affected corner as needed. If interior support is part of the plan, that is a bigger conversation — interior work can mean cutting through the slab inside the house or tunneling from outside — and it should be spelled out in writing before anyone arrives with equipment. Ask to see the layout. Ask how many locations, where each one goes, and what the goal is for each area: lift toward the original position, partial lift, or stabilize in place to stop further settlement. Those are different goals, and a homeowner deserves to know which one he is buying.

Step one at the house is preparation and access. The crew locates utilities, protects landscaping as agreed, and digs a small working hole at each pile location beside the foundation beam. These holes are not dramatic excavations. They are working pits, roughly a couple of feet across, dug down to expose the bottom of the beam so the pile can be placed directly under it. The soil that comes out is set aside for backfill. On a house with planters, porches, or flatwork tight against the wall, this is the stage where you find out whether a contractor planned ahead or is improvising — the good ones talked through those obstacles during the bid, not on dig day.

Step two is setting the first segment and the press. A concrete segment is placed in position under the beam, and the hydraulic press is set over it. As pressure is applied, the segment is pushed down into the earth. Then the ram resets, the next segment is set on top of the first, and the pressing continues. One by one the stack grows downward. The crew watches pressure as they go. In soft upper soil the segments move fairly easily. As the stack gets deeper and the soil firms up, movement per press slows and pressure climbs. That change in feel — easy going, then resistance, then refusal — is the story of your soil written in real time under your own house.

Step three is refusal itself, and it deserves its own explanation because it is the heart of the method. Refusal means the pile, under the full pressing load the system applies, will not advance further at a meaningful rate. The stack has reached a bearing stratum — dense clay, shale, or other firm material depending on where in Texas you live — that can carry the load being transferred to it. Because each pile is pressed using the weight of the structure above it, a pile at refusal has, in a very practical sense, already been load-tested by the house it is about to support. It did not just reach a depth on paper. It stopped under your house's own weight. That is why I trust this method after fifty years in the field: the proof is built into the installation, pile by pile, location by location.

Once a pile reaches refusal, it is capped and prepared to receive the load. A concrete cap and steel shims, as needed, close the small gap between the top of the pile stack and the underside of the beam so contact is solid and even. This detail matters. A deep pile with a sloppy connection at the top is a job half finished. The crew checks that each location is seated properly before any lifting is attempted, because lifting on a pile that is not seated cleanly can shift the load in ways nobody wants.

Step four, where a lift is part of the plan, is the lift itself — and it is the slowest, most careful part of the day. Hydraulic jacks are placed at the pile locations and the settled section is raised in very small increments, working back and forth along

the beam so the structure comes up evenly rather than being forced at one point. Doors are checked. Cracks are watched. The crew stops, measures, and talks. Sometimes a house comes up nicely toward its earlier position. Sometimes an older house tells you, through new stress sounds and fresh cracking in brittle finishes, that it has lived in its settled shape for a long time and should be raised only partway and stabilized there. Listening to the house at this stage is not weakness. It is judgment. The goal is a supported house with doors that work and movement stopped — not a perfect number chased at the cost of damaged walls and plumbing.

That last point deserves emphasis: plumbing and lift are connected. Raising a section of slab moves the pipes that pass through and under it. If drain lines were tested and cleared before the job, the risk is understood going in. Many contractors recommend a plumbing retest after a significant lift, and that is money well spent, because a line that was borderline before can separate during even a careful lift. Ask about this before the job, not after, and get the plan in writing.

Step five is securing, backfilling, and cleanup. Once the section is at its agreed position, the piles are locked into their supporting role with the caps and shims set, jacks are removed, and the working holes are backfilled with the soil that came out of them, tamped as it goes back in. Plantings that were moved are reset as agreed, and the site is graded so water is not left ponding against the beam in the fresh backfill — fresh soil settles, and a good crew will tell you to expect a little settling of the dirt itself in the weeks after, which is normal and different from foundation movement. Walk the site with the foreman before the crew leaves. Look at every location. Ask what was found at each one — depth to refusal varied, and that record belongs with your house papers.

Interior locations, when they are truly needed, follow the same pressing principle with harder access. If piles must go inside, the crew may cut small openings through the slab at each location, press the segments the same way to refusal, then patch the concrete. Flooring has to be moved or protected, dust control matters, and the household disruption is real. That is why interior piles should never be sold casually — they should follow from elevation patterns that show interior settlement, ideally confirmed by your independent engineer, not from a desire to make a bid bigger. Tunneling from outside is another access option some houses allow, where a tunnel is dug under the slab to reach interior beam locations without cutting floors. It costs more in labor and it is still disruptive, just in a different place. Either way, the pile itself is pressed the same way, to the same standard: refusal.

What should you expect in time and disruption? A

straightforward exterior job on one or two sides often takes a few days, depending on locations, access, and weather. You can usually stay in the house. After the job, expect completion elevations, a diagram of pile locations and depths, and warranty paperwork you should read and keep.

A brief hypothetical shows how the pieces fit. Imagine a composite homeowner — not a real customer — with a corner down over an inch, plumbing tested clear, and an engineer confirming settlement. Piles go along that wall and around the corner, the lift is partial by agreement, the doors work again, and a post-lift plumbing test passes. It is sequence, patience, and piles that stopped where the ground said stop.

That is the whole method, without decoration. Concrete segments, pressed under your beam, one after another, until the ground refuses them. Then a careful lift or a firm stabilization, solid caps and shims, clean backfill, and records for your files. When it really is the foundation, that is how you fix it so it stays fixed.

Chapter 12: Fix It in the Right Order — Your Decision Plan, Honest Costs, and Care After the Verdict

Everything in this book has been leading to one skill: putting the fixes in the right order. Most money wasted on Texas houses is not wasted on bad work. It is wasted on good work done in the wrong sequence — floors leveled before a leak was fixed, cracks patched before movement was understood, a foundation lifted before anyone checked the drains that run under it. This final chapter gives you a decision plan you can keep, talks honestly about what things generally cost, and then covers the part too many homeowners skip: how to care for the house after the verdict, whichever verdict you got.

Here is the plan in plain order. Keep it on paper.

First, document what you see, with dates. Photograph cracks with a coin or ruler in the frame for scale. Note which doors stick and when they started. Keep a simple log through a season if the situation is not urgent. Movement that is still changing tells a different story than a crack that has looked the same for three years, and your dated notes will help every professional who walks in.

Second, look at water before structure. Check drainage around the house — does the ground slope away, do gutters dump beside the beam, does water pond after rain? Then, if

there is any sign pointing toward plumbing — movement centered on wet rooms, backups, odors, sudden changes, unexplained water use — get the drain and water lines tested by a licensed plumber and keep the written results. Fix confirmed leaks before structural work, and understand that soil swollen by a long leak may need time to dry and settle back after the repair.

Third, get the structure read. If the picture is unclear, the stakes are high, or opinions conflict, hire an independent structural engineer for elevation measurements and a written report. If the picture is straightforward and a contractor's evaluation matches what you can see and measure, you may proceed on that — but never be shy about buying the independent reading. It is the cheapest certainty in this whole business.

Fourth, decide based on the verdict, not on fear. If the verdict is "not the foundation" — a leak, drainage, framing, roof, or normal seasonal movement — fix that cause, in that trade, and monitor. If the verdict is real foundation settlement, get written foundation bids that all work from the same facts: same pile layout areas, same lift goal, same plumbing plan. Compare them line by line, not just by total price.

Fifth, sequence the actual work so no trade undoes another. Plumbing repairs that lie under an area to be lifted come first, or are planned with the lift and retested after. Foundation support comes next. Cosmetic repairs — drywall patches, paint, door planing, floor finishes — come last, after the house has had some weeks to sit in its new position. Homeowners reverse those last two constantly, and then pay twice for the same patch.

Now, honest costs — with the warning first. Every house is different, prices move with time, access, and your part of Texas, and nobody can price your house accurately from a book. What follows are general ballparks to help you plan and to help you spot a number that needs extra questions, not quotes and not promises.

A plumbing hydrostatic and isolation test commonly runs in the low hundreds of dollars, and adding camera work can bring the total higher depending on access and how much line is run. Repairing a broken drain section under a slab costs far more than the test, especially if tunneling or slab cutting is needed — that work can run into the several thousands, and a large under-slab repipe can go well beyond that. An independent structural engineer's residential evaluation and report often falls in the mid hundreds, sometimes more for a large or complicated house. Foundation support with pressed concrete piles is usually priced per pile location, and in recent Texas market conditions that per-pile figure has commonly

landed somewhere in the high hundreds to a bit over a thousand dollars per location, with total jobs frequently landing in the several thousands to the low tens of thousands depending on how many locations and how much of the house is involved. Interior locations, tunneling, and difficult access raise the price. Cosmetic repairs afterward vary too widely to pin down, but plan something for them rather than nothing. If a bid comes in far below every other bid for the same layout, ask what is missing. If it comes in far above, ask what is included that the others left out. The ballpark is a tool for asking better questions, nothing more.

One more cost truth: doing it in the wrong order is the most expensive option of all, even when each individual job was priced fairly. A lift over an active leak, new floors over a still-moving slab, fresh paint over a still-opening crack — each one buys the same work twice. The plan above exists to keep you from paying tuition on that lesson.

After the verdict and the work, care for the house like the clay underneath it is still alive — because it is. Texas expansive soil never retires. Your job from here on is moisture consistency. Clay that stays at a fairly even moisture level moves far less than clay that swings between soaked and bone dry. In dry stretches, that means watering the soil around the foundation evenly and modestly, using soaker hoses placed a short distance out from the beam, run on a steady schedule rather than in occasional floods. The goal is not to soak the ground. The goal is to keep it from shrinking away from the foundation during a long drought. In wet stretches, your job reverses: make sure gutters are clear, downspouts carry water well away from the house, and the ground still slopes outward so water does not sit against the beam.

Walk your house twice a year with the same eyes you learned in this book. Early spring and late fall work well. Look at exterior brick and mortar lines, check the corners, open and close the doors that once stuck, glance at the caulk lines where walls meet ceilings, and look under sinks for slow leaks while you are at it. Take a few dated photos from the same spots each time. Ten minutes, twice a year, will catch a new leak or a drainage change while it is still a small problem. Keep an eye on big trees near the house as well — a large root system draws a great deal of water from the soil on its side of the house, and sudden tree removal can change soil moisture just as surely as a drought can. You do not need to fear trees. You need to know they are part of the moisture picture.

Keep your paperwork together in one folder or one digital file: plumbing test results before and after any lift, the engineer's report, the pile location diagram with depths to refusal,

completion elevations, contracts, and warranty documents. Read the warranty before you need it. Know what movement it covers, what it requires of you — many warranties expect reasonable drainage and moisture maintenance from the homeowner — and whether it transfers when you sell, because someday a buyer and a title company will ask, and that folder will answer calmly while memory would have fumbled. If your house was stabilized rather than lifted back to level, that folder is also where your explanation lives: the agreed goal, in writing, so a future buyer sees a decision instead of a defect.

Know the signs that mean "call again." A door that worked after the repair slowly binding again over months. A crack that was closed reopening in the same place. New plumbing trouble in the area that was lifted. Water appearing where it never appeared before. None of these automatically means the foundation work failed — a new leak can move a well-supported house at the edges, and seasonal movement never fully disappears in Texas clay — but each one earns a prompt look, starting, as always, with water and measurement rather than worry.

A last hypothetical ties the book together. Picture a composite homeowner — invented for illustration, not a real customer — who finds cracks in January, resists the urge to panic, photographs everything, finds a failed drain test in February, fixes the leak, lets the soil rest, gets an engineer's reading in spring that shows one side still down, supports that side with pressed piles in early summer, patches drywall in the fall, and waters evenly through the next drought. Her total spend was not the cheapest path on paper. It was the cheapest path that only had to be walked once. That is the whole secret this book has been trying to hand you: the right fix, in the right order, verified at each step.

Your house will keep talking to you — in its doors, its floors, its cracks, and its quiet seasons when nothing changes at all. You know how to listen now, how to tell a foundation voice from a plumbing voice, a framing voice, a roof voice. You know it is not always the foundation, and you know what to do on the days when it is. Fix the cause first, support what truly settled, care for the clay you live on, and keep your records. Do that, and the house under your family stands a very good chance of doing its job quietly for a long, long time — which is all any of us ever asked of it.

Conclusion: Blame Last, Measure First

If you remember nothing else from this book, remember the order. Signs first, gathered honestly and written down.

Look-alikes second, checked in the order that rules out the cheap and the hidden before the expensive and the obvious. Measurements third, because a record beats a memory every time. Professionals fourth, each in their proper turn — a licensed plumber for the water you cannot see, an independent structural engineer for the judgment no salesman should make for you, and a foundation contractor for the work itself when the work is truly needed. And the verdict last, whenever it comes, because a verdict that arrives after all of that is one you can act on without fear and without regret.

Some houses that open this book scared will close it relieved. Their signs will trace back to a leaking line, a lifting truss, a thirsty oak, a gutter pouring a roof's worth of rain against one wall — real problems, worth fixing, and not one of them a foundation failure. Fix those things in their order, keep your log, and sleep well. Other houses will close this book with the harder verdict confirmed: the ground has let go of an edge or a corner, the measurements prove it, and the house needs to be held. If that is your house, take heart from the plain truth of Chapter 11. A foundation held on pressed concrete piles driven to refusal is held on ground that proved itself under load. It is permanent work, done in the open, one verifiable pile at a time. Houses come back from it every week in Texas, and they stay back.

Either way, you are no longer at the mercy of the most expensive word in the house. You know what it means, what else it can mean, and how to find out which one is standing in your hallway. That knowledge is worth more than any single repair, because you will live in houses for the rest of your life, and every one of them will someday do something you cannot explain. When it does, you will know what to do first. Write it down. Look for the look-alikes. Measure. Then, and only then, decide.

Thank you for letting an old Texas foundation man walk your house with you. Keep the ground steady, keep the water honest, and keep your records. Your house will tell you the truth if you give it time and pay attention. They always do.

Resources & Next Steps

Travis Nech has spent 50 years in brick, masonry, and foundation work across Texas. He owns and operates Champion Brick Repair, Metro Foundation Repair, LintelLOCK, MortarMagic, and WhiteStone Construction.

- **Champion Brick Repair** — brick & masonry repair, Dallas-Fort Worth — championbrickrepair.com — (817)

900-6324

- **Metro Foundation Repair** — pressed concrete pile foundation repair — metrofoundationrepair.com — (817) 523-1540
- **LintelLOCK** — the field-developed lintel replacement system — lintlerepair.com — (469) 730-0650
- **MortarMagic** — mortar color matching & the Mortar Bucket — mortarmagic.netlify.app
- **WhiteStone Construction** — stone, ranch & property work, Hamilton TX country — (254) 723-5040

If you are standing in a house in the Dallas-Fort Worth area wondering which verdict is yours, start where this book starts: write the signs down, rule out the water, and get the house measured. Metro Foundation Repair reads elevations and gives you the numbers straight — including when the numbers say the foundation is not your problem.

About the Author

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Travis writes the way he works: measure first, tell the truth about what the numbers say, and never sell a family a repair their house does not need. His other books cover brick repair, mortar color matching, lintel replacement, drainage, and the Engineering Truth series on what the ground and the wall really do.