Services Guide

Foundation Contractors

**NOTE 1: This information is pulled from credible sources. This information is a guide. Any information used from this guide must be re-contextualized (no copying and pasting). Re-contextualize information incorporating SEO and business specifics.*

**NOTE 2: For MCP websites, stick to general information and avoid specifics.*

YellowPages™

Table of Contents

Contents

1. FOUNDATION CONTRACTOR OVERVIEW

1.1 GENERAL INFORMATION

http://www.truelevelconcrete.ca/foundation-repair.html

- At first glance, a foundation problem may seem like an extreme problem. However, if you identify the damage before it becomes too advanced, most foundation issues have simple, permanent solutions.
- The key is to recognize the problem early and make sure you call in a foundation repair specialist with the tools and expertise to effectively tackle the problem.

1.2 SEO

Keywords (First Row – BEST, Last Row – LEAST)			
○ Waterproof foundation	○ Slab foundation	○ Pier foundation	○ Cracked foundation
○ Crack repair	○ Slab jacking	○ Helical piers	○ Concrete foundation
○ Basement walls	○ Foundation wall	○ Basement repair	○ Mudjacking
○ Foundation repair	○ House jacking	○ Foundation restoration	○ Floor cracks

2. FOUNDATION REPAIR

Possible Problems and Services under Foundation Repair:

http://www.truelevelconcrete.ca/foundation-repair/settlement-sinking.html
https://en.wikipedia.org/wiki/Settlement_%28structural%29
http://inspectapedia.com/structure/Concrete_Floor_Cracks.php
http://royalwork.ca/2015/08/complete-homeowners-guide-to-foundation-cracks/
http://www.oldhouseonline.com/how-to-fix-sagging-floors/
http://www.jeswork.com/foundation-repair/uneven-floors/

http://www.myfoundationsolutions.com/why-foundations-fail/warning-signs/sticking-windows-and-doors/
https://en.wikipedia.org/wiki/House_raising
https://www.wolfehousebuildingmovers.com/services/house-building-lifting/

Service/Product	Description
Settlement sinking	○ Settlement in a structure refers to the distortion or disruption of parts of a building due to unequal compression of its foundations; shrinkage, such as that which occurs in timber-framed buildings as the frame adjusts its moisture content; or undue loads being applied to the building after its initial construction. ○ Some settlement is quite normal after construction has been completed, but unequal (differential) settlement may cause significant problems for buildings.
Floor crack	○ Types of foundation cracks, crack patterns, differences in the meaning of cracks in different foundation materials, site conditions, building history, and other evidence of building movement and damage are described to assist in recognizing foundation defects and to help the inspector separate cosmetic or low-risk conditions from those likely to be important and potentially costly to repair.
Wall crack	○ Vertical wall cracks are often present in poured walls, wider at the bottom and continue to increase in length and width. These will likely occur shortly after construction, extend down the entire length of the wall to the floor and possibly be the site of water infiltration. Settling cracks can increase in size to 1/4″ or more or stop completely. ○ Diagonal cracks may arise at a corner of a concrete wall where it was exposed to frost damage, expansive clay soil, point loads exceed the concrete mix used, or even a tree/shrub planted too close to the foundation wall. A diagonal crack under a ground floor window can be due to foundation heave indicative of shallow or absent footings. Cracks that appear anywhere else on the wall wider at the bottom than the top will indicate settlement under the building. ○ Horizontal wall cracks often show up in concrete block construction, and where they appear will determine the cause and severity. If they are located in the upper third of the block wall, they were likely caused by surface and subsurface frost or vehicle loading.
Sagging	○ One of the most common complaints of old-house owners is sagging floors.

crawlspace	○ Typically, floors settle near the center of the house because the perimeter walls are constructed over a sound, deep foundation and settle very little. ○ Although generally only an annoyance, sagging floors can be an indication of worsening problems.
Uneven floor	○ Uneven, bowing or sagging floors are caused by settling support columns or sagging floor joists. When your home is built, the support structure is designed to hold whatever is on top of it. Over time unstable soil, poor support design or waterproofing issues will damage your home's foundation which could cause your uneven floors.
Sticking windows or doors	○ A door that will not close properly and needs a further push could indicate issues with the home. Some doors will get stuck while trying to open it or may have a hard time closing and small cracks, openings or gaps around the border of the frame could indicate a separation. ○ Gaps in any of the doors and windows could be from shifts in the home and early indicators that the foundation is changing and being moved around. Homeowners should inspect their house once a year to check for any signs of a deeper issue. Catching things early and getting the work done is the best way to ensure that the trouble remains small and that it gets done when it should.
Piles	○ A pile is basically a long cylinder of a strong material such as concrete that is pushed into the ground to act as a steady support for structures built on top of it. ○ Pile foundations are used in the following situations: 1) When there is a layer of weak soil at the surface. This layer cannot support the weight of the building, so the loads of the building have to bypass this layer and be transferred to the layer of stronger soil or rock that is below the weak layer. 2) When a building has very heavy, concentrated loads, such as in a high rise structure, bridge, or water tank.
Lift, move, or transport building	○ House raising (house lifting, house jacking, barn jacking, building jacking) is the process of separating a building from its foundation and temporarily raising it with hydraulic screw jacks. ○ The process is the first step in structure relocation in which the building is moved to a different location.[1] House raising may also be a part of a renovation to build a foundation under an existing house or make a house larger by building a new floor level creating a two story house.
Raise roof or structure	○ If you need to add a story to your house, you don't have to waste time and money removing and rebuilding a perfectly good roof, not to

	mention cleaning or remodeling the story just beneath the roof. You can elevate the existing structure to just above the new desired height (typically between 9 to 12 feet). A new wood floor system is then built on the existing foundation walls and exterior frame walls are set in place. Once all the bearing points are in place, our crew will return to set the house onto the newly-constructed first floor.
Underpinning	○ In construction or renovation, underpinning is the process of strengthening the foundation of an existing building or other structure. Underpinning may be necessary for a variety of reasons: 1) The original foundation is simply not strong or stable enough. 2) The usage of the structure has changed. 3) The properties of the soil supporting the foundation may have changed (possibly through subsidence) or were mischaracterized during design. 4) The construction of nearby structures necessitates the excavation of soil supporting existing foundations. 5) To increase the depth or load capacity of existing foundations to support the addition of another story to the building (above or below grade). 6) It is more economical, due to land price or otherwise, to work on the present structure's foundation than to build a new one. 7) Earthquake, flood, drought or other natural causes have caused the structure to move, thereby requiring stabilization of foundation soils and/or footings.

2.1 SETTLEMENT SINKING

http://www.truelevelconcrete.ca/foundation-repair/settlement-sinking.html

General:

- Signs your building is showing signs of damage related to foundation settlement:
  - Stair-step cracks in brick or concrete block foundation walls
  - Leaning, titling chimneys
  - Cracks around doors and windows
  - Jamming, sticking doors and windows
  - Cracks in a concrete slab floor
  - Cracks in drywall
- Signs of a settling foundation can be very subtle at first -- many homeowners can go months or even years before noticing a crack in their foundation. The long-term damage from foundation settlement, however, is ongoing and will lead to more severe foundation problems.
- We fix foundation settlement issues by installing steel foundation piers. These piers will extend beneath the foundation, contacting strong supporting soils that will permanently stabilize your structure.

Possible Repair Options for Settlement Sinking:

1. Foundation Push Piers:
    - Foundation push piers are straight, steel piers that attach to your foundation and extend far below the structure to strong supporting soils.
    - During the installation, a section of the foundation footing is exposed and cut to attach to each pier's bracket. This is possible year-round from either inside or outside of your foundation or structure.
    - Foundation brackets are secured to the footing, and tubular pier sections are hydraulically driven through each bracket.
    - Pier sections continue to be driven downwards until the piers meet competent strata that can bear the weight of your home without compression.
    - When all push piers have been installed, they will work in unison to transfer the weight of the structure to the strong soils or bedrock below. If possible, the home is also lifted back to its original, level position.
2. Slab Pier Systems:
    - Foundation slab piers are straight steel piers that extend from stable soils deep below the structure to support brackets directly in contact with the underside of the slab.
    - These piers are meant to support a settling concrete floor, and are not appropriate for foundation wall stabilization.
    - Slab piers are also inappropriate for repairing heaving foundations, where the floor is being lifted by expansive soils or frost heave.
    - During installation, a small hole is cored through the concrete floor. A slab bracket is assembled beneath the concrete slab, and steel tubes are hydraulically driven down through this bracket assembly.
    - When the slab piers have reached competent soils, the weight of the slab is transferred through the piers to load-bearing soils below. If possible, the slab is lifted back to level position.
    - At the end of the installation, grout is pumped under the slab to fill any voids, and all cored holes in the slab are restored with new concrete for a clean, professional look.
    - This installation is possible year-round, and provides a permanent solution for your home.

2.2 FLOOR CRACK

http://www.truelevelconcrete.ca/foundation-repair/floor-crack.html

General:

- Signs you have cracked or sinking concrete floor:
    - Cracks in the concrete floor
    - Floors dropping and separating from the walls, forming a gap between the floor and wall

  - Interior walls separating from the ceiling, forming a gap between the wall and ceiling
  - Walls pulling away from adjacent walls
  - Interior wall cracks, commonly off the corners of interior doors
- When a floor slab settles, the damage can manifest itself in many ways. Along with cracks in the concrete, the floors can separate from the walls as they sink downwards. Alternatively, the interior wall may be pulled down with the floor, instead separating from the ceiling. Walls can also pull away from other walls, and interior wall cracks can form -- commonly off the corners of interior doors.
- When a concrete floor settles, it can mean serious damage to your home. The causes of floor slab settlement are almost always due to the soils underneath being unable to support the weight of the concrete. They often accompany other foundation problems in your home. The three most common causes of settling concrete floor slabs are as follows:
  - Drying/shrinking of soils under the slab
  - Washout of soil underneath the slab
  - Poor compaction of foundation fill soils

Fixing a Floor Crack:

Steps	Description
1. Preparing for installation	○ Before the installation day, a representative will have already inspected your foundation issue. At that time, a foundation repair proposal was put in writing. Your foundation repair experts will use that proposal to map out the locations where the slab piers will be installed. At the beginning of each slab pier installation, a small hole is cored through your concrete slab floor. This hole will create an access point for the slab piers that are about to be installed.
2. Position slab bracket	○ To give the slab pier something to "lift," a slab bracket is positioned beneath the concrete slab. A three-piece slab bracket is assembled underneath your concrete floor, allowing for a much smaller hole to be cored in your concrete slab. Additionally, this bracket reaches across more area along your floor, creating a more even distribution of weight.
3. Install steel tubes	○ Steel tubes are hydraulically driven down through the bracket to the competent soils beneath. These steel tubes are the real strength of the foundation pier system -- and are responsible for transferring the home weight to strong supporting soils. To prevent corrosion, slab piers are designed using galvanized steel. This ensures the quality and long-lasting strength of your slab pier system.
4. Transfer slab	○ The weight of the concrete slab is transferred through the piers to the load-bearing strata underneath your home. As the system lifts your

weight to soil	concrete slab floor upwards, the sinking movement of your floor will be permanently halted. Often, it will also be possible to lift the concrete slab back to a level position.
5. Inject grout fill	○ Once the concrete slab has been lifted, a void will be present underneath the removed floor. Additionally, if your floor had been sinking because of compacted soil or washout, a gap existed even before the installation. To address this, we carefully pump grout under the slab to fill in all empty spaces.
6. Cleanup	○ Once the installation is completed, we repair all cored holes with concrete, making your final installation virtually invisible.

2.3 WALL CRACK

http://www.truelevelconcrete.ca/foundation-repair/wall-crack.html

General:

- Signs you have a crack in your foundation wall:
  - Horizontal or vertical wall cracks
  - "Stair-step" or diagonal cracking
  - Bulging, buckling foundation walls
  - Pushing in at the bottom of the wall
  - Sliding in at the top of the wall
- Foundation cracks vary in severity from a simple cosmetic issue to a major problem with your home. However, even serious foundation problems, when addressed early on, can be quickly and permanently fixed.
- Types of foundation cracks:
  - Curing concrete: As concrete cures, it is common for small cracks to appear in foundation walls. These cracks are very common, and they're not a sign of a major foundation problem. Shrinkage cracks tend to be very small "hairline" cracks that are usually 1/16" wide or less. They generally occur near the center of a span and maintain a consistent width for the length of the crack.
  - Foundation settlement: When the soils underneath your foundation fail to support the weight of your home, the foundation will begin to settle unevenly, and cracks will appear. As vertical cracks form and the wall or corner of the house begins to rotate, you will typically see cracks that are wider at the top or bottom. Foundation cracks that are caused by settlement are very serious, and they will only get worse over time as the home continues to move. If you are concerned that your foundation may be cracking due to settlement issues, it's best to consult a professional right away.

- Foundation Pier Systems are an excellent way to stabilize and potentially lift a foundation that is resting on soils that cannot support the weight of the home. Foundation piers are a permanent solution for homes that are settling, and they can be installed year-round.

2.4 SAGGING CRAWLSPACE

http://www.truelevelconcrete.ca/foundation-repair/sagging-crawl-space.html

General:

- Signs you have a sagging crawlspace:
  - Tilting or sinking crawl space supports
  - Too few supports in the crawl space
  - Moist, rotting wood
  - Sagging, sloping, or uneven floors upstairs
  - Cracks in interior drywall
  - Door and window frames skewed and/or unlevel
- Crawl spaces experience structural sagging for these three primary reasons:
  1. Support columns spaced too far apart
  2. Rot-weakened joists, girders, posts
  3. Columns settling due to weak soil/poor footings
- Additional crawl space supports should be installed to ensure that your structure is properly stabilized. Mold and rot should also be addressed by installing a crawl space liner and removing excess moisture from the crawl space.

Fixing a Sagging Crawlspace:

Steps	Description
1. Preparing for installation	○ Before the installation, a system design specialist will meet with you to design a crawl space support system that will effectively return your home to structural stability. Our specialist will also be able to explain our system and answer any questions you may have about your crawl space repair. The location for each crawl space support jack will be mapped out for your installers when they arrive, ensuring a proper installation.
2. Placing the pre-cast footing	○ A pre-cast concrete base (or footing) is placed on top of the engineered fill and carefully leveled. The footing serves as a stable base for the steel jack post, keeping it vertical and distributing the weight bearing on the post across a broad area of soil. The engineered fill base underneath the footing provides solid support that won't shift, settle or be affected by soil moisture. Some building codes may require a poured

	concrete base rather than engineered fill. By the time the weight is distributed through the pre-cast base and the fill, the bearing stresses have dissipated to approximately 10% of the stresses at the top of the post. Even if you have weak supporting soils, you can be assured that the weight of the building will not exceed their bearing capacity.
3. Cutting the jack posts to length	○ Once new bases have been installed, measurements are made for the steel crawl space jack posts, and the posts are cut to length. The steel tube used is manufactured with a triple-layer, in-line galvanized coating. The triple-layer coating process includes: A uniform hot-dip zinc galvanizing layer, an intermediate conversion coating enhances corrosion resistance, a clear, organic top coating to further enhance appearance and durability. Additionally, the inside of the pier tube also has a zinc-rich coating.
4. Assembling and tightening	○ Each crawl space jack post is assembled in your crawl space. The top of the crawl space jack is mounted against the girder, and the installation is carefully plumbed. In cases where existing girders are undersized or damaged by rot, a new sister girder may be installed alongside the original in order to strengthen and reinforce the structure.
5. Encapsulating the crawl space	○ If your wood crawl space joists, girders, and/or supports were damaged by mold, rot, and moisture, then you will want to address these issues to prevent future damage. The encapsulation process involves sealing all crawl space vents, installing an airtight crawl space door, and lining crawl space walls and floors with a durable plastic liner. This treatment can also include additional drainage measures like installing interior drains and a sump pump. Encapsulation stops moisture-related damage and associated structural problems that occur when framing members rot and deteriorate. By investing in crawl space encapsulation, you'll also improve overall home energy efficiency and indoor air quality.

2.5 UNEVEN FLOOR

http://www.truelevelconcrete.ca/foundation-repair/uneven-floor.html

General:

- Signs you have floors that are out of level:
  - Sinking concrete slabs
  - A floor that sags toward the center of the houses
  - Interior doors jamming
  - Floor cracks

  - Mold and rot in the crawl space
- If you have a crawl space and the floors above are out of level, you may have a structural problem in your crawl space. Crawl space jacks can address the structural problems. If a concrete slab is uneven, it could be because of settlement or foundation heaving. Foundation settlement can be solved by installing foundation piers.
- Uneven floors are rarely caused by problems with the floor system itself. Instead, it's often a settling or shifting foundation issue that has impacted the floor system. Floor beams and joists are made from wood that will usually bend or flex rather than crack or break. The same can't be said for masonry foundations. When soil issues cause a foundation to break, the floors above usually bend.
- If your foundation is settling, it may be lifting the concrete floor as the rest of the foundation experiences movement.
- There are also times where the slab floor can lift or sink independently of the walls. Concrete slab floors crack and settle when the soils underneath them shrink, settle or wash away. A concrete slab can move independently of adjacent foundation walls, or along with them. Since settlement isn't uniform, one section of a slab may be elevated as another section sinks down.
- Slab floors that are sinking independently of the walls can be repaired with a slab pier system, shown on the right. These piers are placed in cored holes in the floor, extending down to competent soils to hold your floor in place. They can even be used to lift a slab back to its original, level position.

2.6 STICKING WINDOWS AND DOORS

http://www.truelevelconcrete.ca/foundation-repair/window-door-stuck.html

General:

- Signs you have sticking windows and doors:
  - Doors don't open or close properly.
  - Windows need extra force to open and close.
  - Diagonal cracks that start at top corners of windows and door openings.
  - Floors are uneven, or dip and sag.
  - Door and window openings out of square.
- While there are many issues that can lead to sticking windows and doors, the two most common foundation-related causes are settlement and crawl space supports that have settled, shifted, or deteriorated. Foundation piers can be used to repair settlement issues, while crawl space jacks are a good solution for sagging floors over crawl spaces.
- Cracks that extend along window and door openings can be a symptom of a much larger foundation settlement issue. If ignored, it's possible that the foundation problem that caused these cracks will get worse, potentially leading to more severe damage to your home. Window and door cracks that are connected to foundation problems have two common sources:

- *Settling foundations*: Because of varying soil characteristics, foundation settlement is never uniform. Uneven settlement causes sections of a foundation or slab to crack and shift, while other sections remain in their original positions. While foundations and slabs crack due to soil settlement, the wood framing supported above is more likely to bend or twist. This results in skewed openings for windows -- and doors and floors that dip. The drywall fastened to wood framing is not as flexible, so it's more likely to crack -- especially at the corners of window and doors. When a house has a brick or stone exterior, a settled foundation is likely to have cracks in these upper masonry surfaces due to a lack in flexibility
- *Sinking crawlspace supports*: Crawl spaces are often poorly designed, with too few support columns, rotting floor joists and girders, and weak supporting soils causing the supports to sink. As the crawl space structure sinks, the floor that it supports will sink as well, creating uneven surfaces underfoot. And as the floor sinks, it will pull the interior walls that are attached to it downwards. As the walls sink, they pull apart, leaving cracks in your interior walls. And as the home warps, doors inside the home will jam and become difficult to open or shut.

3. REPAIR PRODUCTS

Foundation Repair Products:

http://www.truelevelconcrete.ca/foundation-repair/foundation-repair-products.html

Service/Product	Description	Benefits
Crawl Space Jack Posts	○ Floors over crawl space foundations sag due to many reasons, including inadequate or shifting supports beneath floor joists and lumber deterioration due to mold and rot. ○ As a floor sags, this problem is often associated with other issues, including cracking drywall, skewed door and window openings, and a potentially moldy, musty odor in the house.	○ Crawl space jack posts are designed to straighten and strengthen sagging floors over crawl space foundations. We also have other products that can eliminate crawl space moisture problems like rot and corroded metal surfaces.
Foundation & Slab	○ When soils are unable to bear the	○ Piers can solve settlement

Piers	load of the structure on top of it, that structure must sink downwards into the ground. This is true with homes, concrete floors, chimneys, and many other structures.	problems by transferring a structure's weight to strong, competent supporting soils at greater depth. Piers can effectively stabilize a settling structure and can even provide jacking points to lift the structure upwards to its original, level position.
PolyLevel® Concrete Leveling System	○ PolyLevel® uses high-density polyurethane expanding foam to raise settled concrete foundations and slabs. The state-of-the-art polymer injection is a fast-acting, affordable alternative to mud jacking and concrete slab replacement.	○ Installers use specially-designed equipment to inject structural-grade polymer into penny-sized holes bored in the slab. After the void underneath the concrete slab is filled, the expanding foam will lift and level the slab. PolyLevel® is a quick-curing solution and the polymer is waterproof and will never wash away.