



DOES MY HOUSE
HAVE **SUBSIDENCE?**

geobear

DOES MY HOUSE HAVE SUBSIDENCE?

The one major sign of building subsidence is the appearance of cracks on walls or the sinking of floors. The cracks caused by subsidence are normally of a diagonal nature and will suddenly appear on plaster work inside the building and on brickwork outside. Subsidence cracks will usually be thicker than fine hairline cracks, which may be caused by natural movement of a structure, and tend to be wider at the top.

The sinking of floors due to subsidence is also quite clear to spot- look at the skirting around your floors where gaps will appear – or cracks and uneven surfaces.

You can also look for possible signs of subsidence around weak points in the building, such as doors and windows. You may find that doors and windows may become stuck due to movement of the building. Building subsidence cracks are also common where an extension meets the main building, indicating that the extension is pulling away from the main structure.



POTENTIAL SUBSIDENCE SIGNS

- Cracks suddenly appearing on the plinth, interior and exterior walls and floors of a building
- Obvious uneven, unbalanced or tilted floors
- Structural damage suddenly appears almost out of nowhere
- Doors and windows stick, or do not open and close as they should
- The emergence of gaps appearing between the frames of doors and windows
- The building or structure seems to be leaning in one direction, rather than being straight
- Water running in the wrong direction in sinks, basins and baths
- Unexplained water damage
- Drainage not working as effectively as usual or at all
- A cracked chimney stack or a chimney breast appears to be leaning to one side.

HOW CAN I GET HELP?

Once subsidence is identified and confirmed, it needs to be resolved to ensure that no further damage comes to the property. Subsidence problems can be cured without the complete inconvenience of excavations which may be time consuming, untidy and residents may have to vacate the building. Geobear geo-polymer injections provide you solutions that minimise disruption to your every day life.

WHAT ARE THE COMMON CAUSES OF SUBSIDENCE?

An enormous problem for homeowners, ground subsidence can strike anywhere for a variety of different reasons. Potential building and home buyers should be aware of the possible causes of subsidence, in order to help them avoid problems in the future.

SOIL COMPOSITION

Subsidence is often related to the moisture content of the soil underneath the foundations. Certain soil types are more susceptible than others.

Cohesive soils, such as clay and silt, are particularly vulnerable, since they shrink and swell in relation to their moisture content. This means that the weather can have an enormous impact on their composition. Clay soil is found extensively across England and Wales, so this is a problem that will affect lots of people.

Non-cohesive soils, like sand and gravel, are less susceptible to shrinkage and growth, but they are more susceptible to being washed away by water flow (such as when a water pipe is damaged).

TREES AND OTHER VEGETATION

As much as a nearby tree or bush may add to the charm of where you live or work, there is the possibility that it could be causing subsidence to occur. Vegetation close to the foundations can be a cause because roots suck moisture from the soil, causing it to shrink. This is more of a risk during long periods of dry weather, as thirsty plants push their roots through building foundations in search of water.

MAN-MADE ISSUES

Subsidence isn't just caused by natural phenomenon – there are several man-made factors that have an impact, too. Water escaping from damaged drains can sometimes soften, or even wash away the ground beneath the foundations, resulting in ground movement and, therefore, building movement. This issue usually affects sandy or gravelly soil.

Mines are another cause of subsidence. Areas where there was heavy coal mining will have several open areas underneath the ground, which can lead to subsidence.

Traffic and building work nearby can cause heavy and extended vibrations, which can lead to the soil moving and subsiding.

SUMMARY OF COMMON CAUSES FOR SUBSIDENCE

- The building or structure has been built on compressible clay soil
- Soil under the building/structure has not been compacted properly during construction
- Water damage has weakened underlying soil and foundations
- Movement has taken place in regard to varying soil structures underneath foundations
- Vibrations & moving of soil at nearby excavations
- Vibration from passing traffic
- Incomplete/poor quality foundation works
- Changes in environmental or surrounding circumstances
- Natural decomposition of soil, such as peat
- Vegetation growth – Oak, Willow and Poplar are all very effective at sucking up moisture from the soil.

WHAT ARE THE COSTS OF SUBSIDENCE?

Ground subsidence is a potentially catastrophic problem for your home or business.

AESTHETIC IMPACT

There's an enormous number of problems for your building that result from ground subsidence, ranging from the aesthetic, to the structurally and financial devastating.

Huge and horrible cracks creeping across your walls, plaster flaking off, wallpaper rucking at the edges and brickwork shifting out of place are all ways that subsidence can make your home or business look worn out and uninviting. This not only makes the building look dramatically worse, this can naturally lead to a fall in value of your home, which could be devastating for you if you're trying to sell it.

Also, if you're running a business, nothing makes you look more unprofessional than cracks on the walls and plaster falling off, potentially turning away customers and clients, and leading to an unnecessary loss of revenue.

CATASTROPHIC CONSEQUENCES FOR SUBSIDENCE

Outside of the threat to the look of your property, there is a multitude of inconveniences, problems and disasters awaiting you if you don't get your subsidence treated.

Doors and windows, which are structural weak points, might become stiff or stuck, due to distortion. Pipework and electrical wiring are also under threat from the sinking and movement of walls. In your home, this can be annoying and unpleasant and in a business this can make parts of the building potentially unusable, leading to a loss of money. If you notice issues with your plumbing or lights, then this could be a symptom of ground subsidence.

At the extreme end of potential problems is massive structural damage to your property. If you begin to notice significant structural damage, then health and safety becomes your concern, which can be calamitous for a home or a business. For a home, the safety of you and your family are at risk, and for a business, the safety of employees, of customers, clients and of the general public are at risk.

Business property owners have the added threat of legal action potentially being taken against them if these risks ever become a reality. If parts of your building collapse, then you can find yourself unable to use it, which will subsequently lead to huge problems and costs for homeowners and business owners.

FINANCIAL IMPLICATIONS

On top of all that, there are also the extensive repair costs which you'll have to weather if you allow it to get this bad. Structural damage to a building, its wiring and pipework can all potentially be enormous financial costs. Importantly, these extensive repairs dwarf the cost of getting Uretrek to come in to sort your ground subsidence.

Untreated subsidence can lead to a significant loss of property and structural value, as well as costs to your business from an inability to use your premises or structures for their planned purpose.

UNTREATED SUBSIDENCE CAN LEAD TO:

- Damage to pipework and electrical wiring
- Potential loss of value of the property or structure
- Significant aesthetic impact
- Doors and windows becoming stuck, due to distortion
- Higher cost of doing business as premises cannot be used as intended
- Public health and safety concerns in case of infrastructure subsidence
- Potential devastating structural consequences and risk of collapse
- Massive repair costs.

HOW CAN SUBSIDENCE BE TREATED?

The Geobear solutions involve the injection of expanding geo-polymer material under your property: the material is pumped into the soils as a liquid and expands under the ground. As the geo-polymer expands, it fills the voids in the soils, forces out any water and compacts the soil – this results in a solid stable base under the foundations or floor of your foundation.

As the material expands in the ground, it will follow the path of least resistance until it cannot migrate any further; at this point, the expansive force of the material begins to

push up onto the foundations of your property. The control takes place through the laser monitors, which will pick up 0.25mm of movement above the injection point.

If the ground is stabilised, the process is stopped at this injection point and moved on to the next – Points at around 1.5m apart are injected to ensure that the material is equally spread under the problem area of your property. If your floor is lifted, material injection will be continued at the injection point until the floor is lifted to the required level.

The material used does not degrade, it is a permanent solution comparable to concrete, but the process of introducing Geobear geo-polymer to the affected area is faster and cleaner. As a comparison, cement grouting requires heavy machinery and your property becomes a full worksite, as with screwpillars, or underpinning, which requires the excavation of foundation soil. With Geobear, we simply drill small holes and inject our material.

The use of geo-polymer as a solution to subsidence is the most convenient method and in most cases the preferred option; other methods, such as underpinning delivered by



BEFORE TREATMENT



AFTER TREATMENT



BEFORE TREATMENT



AFTER TREATMENT

traditional building contractors, are becoming dated as modern technology evolves.

THE BENEFITS OF TREATING SUBSIDENCE:

- A building or structure can be used for its intended purpose, extending its useful life
- Structural and user safety will be improved
- Building structures, the roof, superstructure, doors and windows, work as intended
- The value of the building is maintained, and possibly even increased
- The earlier the remediation is done, the less damage will be caused by subsidence thus resulting in direct cost savings.

Please contact your nearest Geobear office to discuss subsidence concerns.

Geobear can arrange a free site inspection to understand the extent of your subsidence issues.