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## **Overview of common causes of foundation settlement in residential properties and the role of soil compaction in addressing these issues.**

Certainly! Professional assessments determine the best foundation repair solution [foundation repair service near me](#) brickwork.

Foundation settlement in residential properties can be a significant concern for homeowners, potentially leading to structural issues and costly repairs. Understanding the common causes of this settlement and the role of soil compaction in addressing these issues is crucial for effective management.

One of the primary causes of foundation settlement is the natural consolidation of soil over time. As soil layers compress under the weight of a structure, the foundation may gradually sink. This process is often exacerbated by changes in moisture content; when soil becomes excessively wet or dry, its volume changes, leading to settlement. Additionally, poor soil conditions, such as the presence of expansive soils that swell and shrink with moisture changes, can contribute to foundation issues.

Another common cause is the impact of nearby construction activities. Excavation for adjacent buildings or infrastructure can disrupt the soil stability beneath a home's foundation, leading to uneven settling. Tree roots can also play a role; as they grow and absorb moisture, they can cause the soil to shrink and create voids beneath the foundation.

Soil compaction emerges as a pivotal solution in managing these settlement issues. The process involves densifying the soil to improve its load-bearing capacity, thereby reducing the potential for future settlement. By compacting the soil, we minimize the voids and increase the soil's resistance to compression. This not only helps in stabilizing the existing foundation but also prevents further settlement.

Targeted soil compaction techniques are employed to address specific areas of concern. These methods may include dynamic compaction, where heavy weights are dropped onto the soil surface to compact it, or vibro compaction, which uses vibrating probes to densify granular soils. In some cases, soil replacement might be necessary, where unstable soil is removed and replaced with well-compacted material.

In conclusion, understanding the common causes of foundation settlement and utilizing soil compaction techniques are essential in managing and mitigating these issues. By addressing the root causes and employing targeted compaction methods, homeowners can ensure the stability and longevity of their residential properties.

**Detailed explanation of the targeted soil compaction process, including equipment used and techniques employed.**

Certainly! Managing settlement through targeted soil compaction is a critical process in civil engineering, particularly in construction projects. This technique aims to enhance soil properties to support structures effectively, thereby minimizing settlement over time. Let's delve into the detailed explanation of this process, including the equipment used and techniques employed.

Targeted soil compaction involves increasing the density of soil in specific areas to improve its load-bearing capacity. This is especially important in areas where the natural soil is too loose or has a high water content, leading to potential settlement issues after construction. The process begins with a thorough site investigation to assess soil types, moisture content, and existing compaction levels.

One of the primary equipment used in targeted soil compaction is the vibratory roller. This machine uses vibrations to compact soil particles more efficiently than static weight alone. It's particularly effective in compacting granular soils like sand and gravel. Another essential piece of equipment is the pneumatic tired roller, which uses the weight and kneading action of its tires to compact soil. This type is more suited for cohesive soils like clay.

The techniques employed in targeted soil compaction vary depending on the soil type and project requirements. For granular soils, methods like vibration and impact compaction are effective. These techniques involve applying dynamic forces to the soil to rearrange particles into a denser configuration. For cohesive soils, kneading and sheepsfoot rollers are often used. These rollers apply a kneading action that helps break down soil clumps and expels air and water, leading to increased density.

A crucial aspect of targeted soil compaction is monitoring and controlling the compaction process. Engineers use various tools and methods to measure soil density and moisture content during compaction. Common tools include nuclear density gauges and moisture meters. These instruments help ensure that the soil reaches the desired compaction levels as specified in the project's geotechnical design.

In conclusion, targeted soil compaction is a sophisticated process that requires a deep understanding of soil mechanics, appropriate equipment, and precise techniques. By carefully managing soil compaction, engineers can significantly reduce the risk of settlement, ensuring the stability and longevity of constructed structures.

**Benefits of using targeted soil compaction for managing settlement in residential foundation repair, such as increased stability and reduced repair costs.**

Targeted soil compaction is a highly effective technique used in managing settlement issues in residential foundation repair. It offers numerous benefits that make it a preferred choice for homeowners and contractors alike.

One of the primary benefits of using targeted soil compaction is the increased stability it

provides to a foundation. When soil beneath a foundation settles unevenly, it can lead to cracks, uneven floors, and other structural issues. By compacting the soil specifically where it is needed, the foundation becomes more uniformly supported, reducing the likelihood of further settlement and the associated damages. This increased stability ensures that the foundation remains level and secure, providing peace of mind to homeowners.

Another significant advantage is the reduction in repair costs. Traditional methods of addressing foundation settlement often involve extensive excavation, underpinning, or other invasive techniques that can be both time-consuming and expensive. Targeted soil compaction, on the other hand, is a more precise and less invasive method. It involves compacting the soil in a controlled manner, often using specialized equipment, which minimizes the need for extensive excavation and reduces labor costs. As a result, homeowners can achieve effective foundation repair at a fraction of the cost associated with more traditional methods.

Moreover, targeted soil compaction is environmentally friendly. It minimizes disruption to the surrounding landscape and reduces the amount of waste generated during the repair process. This aspect is particularly appealing to homeowners who are conscious of their environmental impact and wish to adopt sustainable practices in their home improvement projects.

In conclusion, targeted soil compaction offers a multitude of benefits for managing settlement in residential foundation repair. Its ability to increase stability, reduce repair costs, and provide an environmentally friendly solution makes it an excellent choice for homeowners looking to address foundation issues effectively and efficiently.

### **Case studies showcasing successful applications of targeted soil compaction in residential foundation repair projects.**

Certainly! Here's a short essay on the topic of managing settlement with targeted soil compaction, focusing on case studies that demonstrate successful applications in residential foundation repair projects:

Managing settlement in residential foundation repair is a critical aspect of ensuring the longevity and stability of homes. One effective method that has gained traction among geotechnical engineers is targeted soil compaction. This technique involves increasing the density of soil in specific areas beneath a foundation to mitigate settlement issues. Let's delve into some compelling case studies that showcase the successful application of targeted soil compaction in residential settings.

In a suburban neighborhood plagued by differential settlement, a team of engineers employed targeted soil compaction to stabilize the foundations of several homes. By conducting a thorough geotechnical assessment, they identified areas of loose soil that were contributing to the settlement. Using a combination of dynamic compaction and vibro-

compaction techniques, they were able to densify the soil in a controlled manner. The results were impressive: not only did the settlement cease, but the homeowners also reported a noticeable improvement in the levelness of their floors.

Another case study involved a historic home with a foundation that had been compromised by expansive clay soils. Traditional methods of underpinning were deemed too invasive for the delicate structure. Instead, the engineers opted for targeted soil compaction, focusing on the areas most affected by the expansive soils. Through careful monitoring and adjustments, they achieved remarkable stability without compromising the home's historical integrity.

In a coastal community facing the dual challenges of soil settlement and rising sea levels, targeted soil compaction was used in conjunction with other stabilization measures. By compacting the soil beneath critical sections of the foundation, the engineers were able to enhance the home's resilience against both settlement and flooding. This proactive approach not only addressed immediate concerns but also future-proofed the property against potential climate-related challenges.

These case studies underscore the versatility and effectiveness of targeted soil compaction in managing settlement in residential foundation repair projects. By precisely targeting areas of concern and employing advanced compaction techniques, engineers can achieve significant improvements in foundation stability. As the demand for sustainable and minimally invasive repair solutions grows, targeted soil compaction is poised to play an increasingly important role in the field of geotechnical engineering.

### **Comparison of targeted soil compaction with traditional foundation repair methods, highlighting advantages and limitations.**

Targeted soil compaction is a modern technique used in managing settlement in foundations, offering a compelling alternative to traditional foundation repair methods. By focusing on compacting specific areas of soil beneath a structure, this method aims to stabilize the ground and prevent further settlement. Here, we will explore the advantages and limitations of targeted soil compaction compared to conventional approaches.

Advantages of Targeted Soil Compaction:

1. **Precision and Efficiency**: Targeted soil compaction allows for precise control over the areas being treated. This targeted approach ensures that only the necessary areas are compacted, reducing the overall time and cost of the project. Unlike traditional methods that may involve extensive excavation and replacement of soil, targeted compaction is more efficient and less disruptive.
2. **Minimal Invasiveness**: One of the significant benefits of targeted soil compaction is its minimally invasive nature. Traditional methods, such as underpinning or piling, often require extensive excavation and disturbance to the existing structure and surrounding area. In

contrast, targeted compaction can be performed with minimal disruption, preserving the integrity of the existing foundation and reducing the risk of damage to adjacent structures.

3. **Environmental Considerations**: Targeted soil compaction is generally more environmentally friendly than traditional methods. It reduces the need for large-scale excavation and disposal of soil, which can have negative environmental impacts. Additionally, by stabilizing the existing soil, targeted compaction helps to minimize the carbon footprint associated with the transportation and use of new materials.

4. **Long-term Stability**: When executed correctly, targeted soil compaction can provide long-term stability to a foundation. By compacting the soil to optimal density, it enhances the load-bearing capacity of the ground, reducing the likelihood of future settlement issues. This can result in a more durable and stable foundation over time.

Limitations of Targeted Soil Compaction:

1. **Suitability of Soil Conditions**: Targeted soil compaction is not universally applicable to all soil types. It is most effective in granular soils, such as sands and gravels, where compaction can significantly improve density. In cohesive soils like clays, the effectiveness of compaction may be limited, and alternative methods may be required.

2. **Depth Limitations**: The depth to which targeted soil compaction can be effectively applied is also a limitation. While it can be used to compact shallow layers of soil, deeper layers may require alternative methods, such as deep soil mixing or jet grouting, to achieve the desired level of compaction.

3. **Expertise and Equipment**: Successful implementation of targeted soil compaction requires specialized knowledge and equipment. It is essential to have experienced professionals who understand the principles of soil mechanics and compaction techniques. Additionally, the use of compactors and monitoring equipment adds to the project's cost and complexity.

4. **Monitoring and Maintenance**: After targeted soil compaction, ongoing monitoring may be necessary to ensure the stability of the foundation. Settlement can still occur over time, and regular assessments may be required to address any issues that arise. This need for maintenance can add to the long-term costs associated with the method.

In conclusion, targeted soil compaction offers several advantages over traditional foundation repair methods, including precision, efficiency, minimal invasiveness, and environmental benefits. However, its effectiveness is contingent on suitable soil conditions, depth limitations, and the availability of expertise and equipment. When appropriately applied, targeted soil compaction can be a valuable tool in managing settlement and ensuring the long-term stability of foundations.

**Importance of regular maintenance and monitoring to ensure long-term effectiveness of targeted soil compaction in managing settlement.**

In the realm of civil engineering and construction, managing settlement through targeted soil compaction is a critical strategy for ensuring the stability and longevity of structures. However, the effectiveness of this approach is highly contingent upon the implementation of regular maintenance and monitoring protocols.

Targeted soil compaction involves the selective densification of soil beneath or around a structure to mitigate settlement issues. While the initial compaction process can significantly reduce the risk of excessive settlement, the dynamic nature of soil behavior means that ongoing attention is necessary to maintain these benefits over time.

Regular maintenance is essential for several reasons. Firstly, environmental factors such as weather conditions, groundwater fluctuations, and seismic activity can alter soil properties, potentially leading to settlement issues even after initial compaction. Routine checks allow engineers to identify and address these changes promptly, preventing minor issues from escalating into major problems.

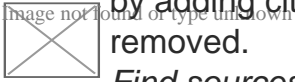
Moreover, human activities, such as nearby construction or changes in land use, can impact soil stability. Regular monitoring enables engineers to assess the effects of these activities and make necessary adjustments to the compaction strategy. This proactive approach not only preserves the integrity of the structure but also extends its lifespan, offering a cost-effective solution in the long run.

In addition to maintenance, monitoring plays a pivotal role in the sustained effectiveness of targeted soil compaction. Utilizing advanced technologies such as settlement plates, inclinometers, and piezometers allows for real-time data collection on soil behavior. This data-driven approach facilitates early detection of settlement trends, enabling timely interventions that can prevent structural damage.

Furthermore, monitoring provides valuable insights into the performance of the compaction techniques used. By analyzing data over time, engineers can refine their methods, optimizing future compaction efforts for greater efficiency and effectiveness. This continuous improvement cycle is vital for adapting to evolving site conditions and ensuring that targeted soil compaction remains a viable solution for managing settlement.

In conclusion, the importance of regular maintenance and monitoring in the context of targeted soil compaction cannot be overstated. These practices are fundamental to sustaining the long-term effectiveness of compaction efforts, safeguarding structural integrity, and ensuring the enduring success of construction projects. By embracing a proactive and data-informed approach, engineers can navigate the complexities of soil behavior, delivering resilient and stable structures that stand the test of time.

## **About basement waterproofing**



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**Basement waterproofing** involves techniques and materials used to prevent water from penetrating the basement of a house or a building. Waterproofing a basement that is below ground level can require the application of sealant materials, the installation of drains and sump pumps, and more.

## Purpose

[edit]

Waterproofing is usually required by building codes for structures that are built at or below ground level. Waterproofing and drainage considerations are especially important in cases where ground water is likely to build up in the soil or where there is a high water table.

Water in the soil causes hydrostatic pressure to be exerted underneath basement floors and walls. This hydrostatic pressure can force water in through cracks, which can cause major structural damage as well as mold, decay, and other moisture-related problems.

## Methods

[edit]

Several measures exist to prevent water from penetrating a basement foundation or to divert water that has penetrated a foundation:

### French Drain

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### French drain

### Interior wall and floor sealers

- Interior water drainage
- Exterior drainage
- Exterior waterproofing coatings
- Box type waterproofing<sup>[1]</sup>



- Foundation crack injections
- French drains
- Sump pump

## **Interior sealants**

[edit]

In poured concrete foundations, cracks and pipe penetrations are the most common entry points for seepage. These openings can be sealed from the interior. Epoxies, which are strong adhesives, or urethanes can be pressure injected into the openings, thus penetrating the foundation through to the exterior and cutting off the path of the seepage.

In masonry foundations, interior sealers will not provide permanent protection from water infiltration where hydrostatic pressure is present. However, interior sealers are good for preventing high atmospheric humidity inside the basement from absorbing into the porous masonry and causing spalling. Spalling is a condition where constant high humidity or moisture breaks down masonry surfaces, causing deterioration and shedding of the concrete surfaces.

Other coatings can be effective where condensation is the main source of wetness. It is also effective if the problem has minor dampness. Usually, interior waterproofing will not stop major leaks.

## **Interior water drainage**

[edit]

Although interior water drainage is not technically waterproofing, it is a widely accepted technique in mitigating basement water and is generally referred to as a basement waterproofing solution. Many interior drainage systems are patented and recognized by Building Officials and Code Administrators(BOCA) as being effective in controlling basement water.

A common system for draining water that has penetrated a basement involves creating a channel around the perimeter of the basement alongside the foundation footers. A French drain, PVC pipe, or other drainage system is installed in the newly made channel. The installed drain is covered with new cement.

The drainage system collects any water entering the basement and drains it to an internally placed sump pump system, which will then pump the water out of the basement. The Federal Emergency Management Agency (FEMA) recommends basement waterproofing with a water alarm and "battery-operated backup pump" as a preventive measure against the high cost of flooding.<sup>[2]</sup> Wall conduits (such as dimple boards or other membranes) are fastened to the foundation wall and extend over the new drainage to guide any moisture down into the system.

## **Exterior waterproofing**

[edit]

Waterproofing a structure from the exterior is the only method the U.S. International Building Code (IBC) recognizes as adequate to prevent structural damage caused by water intrusion.

Waterproofing an existing basement begins with excavating to the bottom sides of the footings. Once excavated, the walls are then power washed and allowed to dry. The dry walls are sealed with a waterproofing membrane,<sup>[3]</sup> and new drainage tiles (weeping tiles) are placed at the side of the footing.

A French drain, PVC pipe, or other drainage system is installed and water is led further from the basement.

## **Polymer**

[edit]

Over the past ten years, polymer-based waterproofing products have been developed. Polymer-based products last for the lifetime of the building and are not affected by soil pH. Polymer-based waterproofing materials can be sprayed directly onto a wall, are very fast curing, and are semi-flexible, allowing for some movement of the substrate.

## **Causes of water seepage and leaks**

[edit]

Water seepage in basement and crawl spaces usually occurs over long periods of time and can be caused by numerous factors.

- Concrete is one of the most commonly used materials in home construction. When pockets of air are not removed during construction, or the mixture is not allowed to cure properly, the concrete can crack, which allows water to force its way through the wall.
- Foundations (footings) are horizontal pads that define the perimeter of foundation walls. When footings are too narrow or are not laid deep enough, they are susceptible to movement caused by soil erosion.
- Gutters and downspouts are used to catch rain water as it falls and to discharge it away from houses and buildings. When gutters are clogged or downspouts are broken, rainwater is absorbed by the soil near the foundation, increasing hydrostatic pressure.
- Weeping tile is a porous plastic drain pipe installed around the perimeter of the house. The main purpose of external weeping tile is preventing water from getting into a basement. However, these pipes can become clogged or damaged, which causes excess water to put pressure on internal walls and basement floors.
- Water build up inside window wells, after heavy rain or snow, can lead to leaks through basement window seams. Window well covers can be used to prevent water from accumulating in the window well.

- Ground saturation is another common form of basement leaks. When the footing drain fails the ground around the basement can contain too much water and when the saturation point is met flooding can occur.

## Warning signs of water damage

[edit]

Signs that water is seeping into a basement or crawlspace often take years to develop and may not be easily visible. Over time, multiple signs of damage may become evident and could lead to structural failure.

- Cracked walls: Cracks may be horizontal, vertical, diagonal or stair-stepped. Severe pressure or structural damage is evident by widening cracks.
- Buckling walls: Usually caused by hydrostatic pressure. Walls appear to be bowed inward.
- Peeling paint: Water seeping through walls may lead to bubbling or peeling paint along basement walls.<sup>[4]</sup>
- Efflorescence: White, powdery residue found on basement walls near the floor.
- Mold: Fungi that usually grow in damp, dark areas and can cause respiratory problems after prolonged exposure.

## Foundation crack injections

[edit]

Foundation crack injections are used when poured concrete foundations crack, either from settlement or the expansion and contraction of the concrete. Epoxy crack injections are typically used for structural purposes while hydrophobic or hydrophilic polyurethane injections are used to seal cracks to prevent penetration of moisture or water. Concrete is both strong and inexpensive, making it an ideal product in construction. However, concrete is not waterproof.

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[edit]

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## About home repair

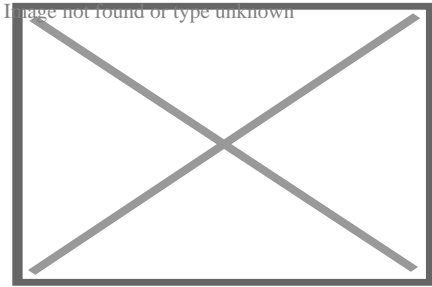
For the novel by Liz Rosenberg, see Home Repair (novel).

For other uses of "repair", see Maintenance.

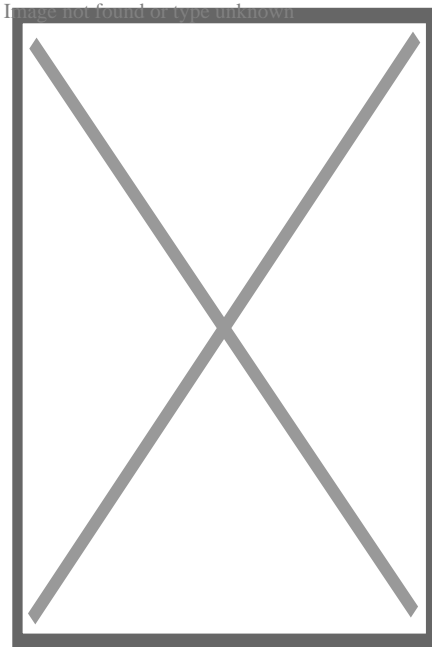
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A mobile home being repaired in Oklahoma



A person making these repairs to a house after a flood

**Home repair** involves the diagnosis and resolution of problems in a home, and is related to home maintenance to avoid such problems. Many types of repairs are "do it yourself" (DIY) projects, while others may be so complicated, time-consuming or risky as to require the assistance of a qualified handyman, property manager, contractor/builder, or other professionals.

Home repair is not the same as renovation, although many improvements can result from repairs or maintenance. Often the costs of larger repairs will justify the alternative of investment in full-

scale improvements. It may make just as much sense to upgrade a home system (with an improved one) as to repair it or incur ever-more-frequent and expensive maintenance for an inefficient, obsolete or dying system.

### **Worn, consumed, dull, dirty, clogged**

[edit]

Repairs often mean simple replacement of worn or used components intended to be periodically renewed by a home-owner, such as burnt out light bulbs, worn out batteries, or overfilled vacuum cleaner bags. Another class of home repairs relates to restoring something to a useful condition, such as sharpening tools or utensils, replacing leaky faucet washers, cleaning out plumbing traps, rain gutters. Because of the required precision, specialized tools, or hazards, some of these are best left to experts such as a plumber. One emergency repair that may be necessary in this area is overflowing toilets. Most of them have a shut-off valve on a pipe beneath or behind them so that the water supply can be turned off while repairs are made, either by removing a clog or repairing a broken mechanism.

### **Broken or damaged**

[edit]

Perhaps the most perplexing repairs facing a home-owner are broken or damaged things. In today's era of built-in obsolescence for many products, it is often more convenient to replace something rather than attempt to repair it. A repair person is faced with the tasks of accurately identifying the problem, then finding the materials, supplies, tools and skills necessary to sufficiently effect the repair. Some things, such as broken windows, appliances or furniture can be carried to a repair shop, but there are many repairs that can be performed easily enough, such as patching holes in plaster and drywall, cleaning stains, repairing cracked windows and their screens, or replacing a broken electrical switch or outlet. Other repairs may have some urgency, such as broken water pipes, broken doors, latches or windows, or a leaky roof or water tank, and this factor can certainly justify calling for professional help. A home handyperson may become adept at dealing with such immediate repairs, to avoid further damage or loss, until a professional can be summoned.

### **Emergency repairs**

[edit]

Emergencies can happen at any time, so it is important to know how to quickly and efficiently fix the problem. From natural disasters, power loss, appliance failure and no water, emergency repairs tend to be one of the most important repairs to be comfortable and confident with. In most cases, the repairs are DIY or fixable with whatever is around the house. Common repairs would be fixing a leak, broken window, flooding, frozen pipes or clogged toilet. Each problem can have a relatively simple fix, a leaky roof and broken window can be patched, a flood can be pumped

out, pipes can be thawed and repaired and toilets can be unclogged with a chemical. For the most part, emergency repairs are not permanent. They are what you can do fast to stop the problem then have a professional come in to permanently fix it.<sup>[1]</sup> Flooding as a result of frozen pipes, clogged toilets or a leaky roof can result in very costly water damage repairs and even potential health issues resulting from mold growth if not addressed in a timely manner.

## **Maintenance**

[edit]

Periodic maintenance also falls under the general class of home repairs. These are inspections, adjustments, cleaning, or replacements that should be done regularly to ensure proper functioning of all the systems in a house, and to avoid costly emergencies. Examples include annual testing and adjustment of alarm systems, central heating or cooling systems (electrodes, thermocouples, and fuel filters), replacement of water treatment components or air-handling filters, purging of heating radiators and water tanks, defrosting a freezer, vacuum refrigerator coils, refilling dry floor-drain traps with water, cleaning out rain gutters, down spouts and drains, touching up worn house paint and weather seals, and cleaning accumulated creosote out of chimney flues, which may be best left to a chimney sweep.

Examples of less frequent home maintenance that should be regularly forecast and budgeted include repainting or staining outdoor wood or metal, repainting masonry, waterproofing masonry, cleaning out septic systems, replacing sacrificial electrodes in water heaters, replacing old washing machine hoses (preferably with stainless steel hoses less likely to burst and cause a flood), and other home improvements such as replacement of obsolete or ageing systems with limited useful lifetimes (water heaters, wood stoves, pumps, and asphaltic or wooden roof shingles and siding).

Often on the bottom of people's to-do list is home maintenance chores, such as landscaping, window and gutter cleaning, power washing the siding and hard-scape, etc. However, these maintenance chores pay for themselves over time. Often, injury could occur when operating heavy machinery or when climbing on ladders or roofs around your home, so if an individual is not in the proper physical condition to accomplish these chores, then they should consult a professional. Lack of maintenance will cost more due to higher costs associated with repairs or replacements to be made later. It requires discipline and learning aptitude to repair and maintain the home in good condition, but it is a satisfying experience to perform even seemingly minor repairs.

## **Good operations**

[edit]

Another related issue for avoiding costly repairs (or disasters) is the proper operation of a home, including systems and appliances, in a way that prevents damage or prolongs their usefulness. For example, at higher latitudes, even a clean rain gutter can suddenly build up an ice dam in

winter, forcing melt water into unprotected roofing, resulting in leaks or even flooding inside walls or rooms. This can be prevented by installing moisture barrier beneath the roofing tiles. A wary home-owner should be alert to the conditions that can result in larger problems and take remedial action before damage or injury occurs. It may be easier to tack down a bit of worn carpet than repair a large patch damaged by prolonged misuse. Another example is to seek out the source of unusual noises or smells when mechanical, electrical or plumbing systems are operating—sometimes they indicate incipient problems. One should avoid overloading or otherwise misusing systems, and a recurring overload may indicate time for an upgrade.

Water infiltration is one of the most insidious sources of home damage. Small leaks can lead to water stains, and rotting wood. Soft, rotten wood is an inviting target for termites and other wood-damaging insects. Left unattended, a small leak can lead to significant structural damage, necessitating the replacement of beams and framing.

With a useful selection of tools, typical materials and supplies on hand, and some home repair information or experience, a home-owner or handyperson should be able to carry out a large number of DIY home repairs and identify those that will need the specialized attention of others.

## Remediation of environmental problems

[edit]

When a home is sold, inspections are performed that may reveal environmental hazards such as radon gas in the basement or water supply or friable asbestos materials (both of which can cause lung cancer), peeling or disturbed lead paint (a risk to children and pregnant women), in-ground heating oil tanks that may contaminate ground water, or mold that can cause problems for those with asthma or allergies. Typically the buyer or mortgage lender will require these conditions to be repaired before allowing the purchase to close. An entire industry of environmental remediation contractors has developed to help home owners resolve these types of problems.

## See also

[edit]

-  not found or type unknown Housing portal
- Electrical wiring
- Handyperson
- Housekeeping
- Home improvement
- Home wiring
- HVAC
- Maintenance, repair, and operations
- Plumbing
- Right to repair

- Smoke alarm
- Winterization

## References

[edit]

1. <sup>^</sup> *Reader's Digest New Complete Do-it-yourself Manual*. Montreal, Canada: Reader's Digest Association. 1991. pp. 9–13. ISBN 9780888501783. OCLC 1008853527.

- v
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## Rooms and spaces of a house

- Bonus room
- Common room
- Den
- Dining room
- Family room
- Garret
- Great room
- Home cinema
- Kitchen
  - dirty kitchen
  - kitchenette
- Living room
- Gynaecium
  - harem
- Andron
  - man cave
- Recreation room
  - billiard room
- Shrine
- Study
- Sunroom

## Shared rooms



## Private rooms

- Bathroom
  - toilet
- Bedroom / Guest room
  - closet
- Bedsit / Miniflat
- Boudoir
- Cabinet
- Nursery

## Spaces

- Atrium
- Balcony
- Breezeway
- Conversation pit
- Cubby-hole
- Deck
- Elevator
  - dumbwaiter
- Entryway/Genkan
- Fireplace
  - hearth
- Foyer
- Hall
- Hallway
- Inglenook
- Lanai
- Loft
- Loggia
- Overhang
- Patio
- Porch
  - screened
  - sleeping
- Ramp
- Secret passage
- Stairs/Staircase
- Terrace
- Veranda
- Vestibule

**Technical, utility  
and storage**

- Attic
- Basement
- Carport
- Cloakroom
- Closet
- Crawl space
- Electrical room
- Equipment room
- Furnace room / Boiler room
- Garage
- Janitorial closet
- Larder
- Laundry room / Utility room / Storage room
- Mechanical room / floor
- Pantry
- Root cellar
- Semi-basement
- Storm cellar / Safe room
- Studio
- Wardrobe
- Wine cellar
- Wiring closet
- Workshop

## Great house areas

- Antechamber
- Ballroom
- Kitchen-related
  - butler's pantry
  - buttery
  - saucery
  - scullery
  - spicery
  - still room
- Conservatory / Orangery
- Courtyard
- Drawing room
- Great chamber
- Great hall
- Library
- Long gallery
- Lumber room
- Parlour
- Sauna
- Servants' hall
- Servants' quarters
- Smoking room
- Solar
- State room
- Swimming pool
- Turret
- Undercroft

## Other

- Furniture
- Hidden room
- House
  - house plan
  - styles
  - types
- Multi-family residential
- Secondary suite
- Duplex
- Terraced
- Detached
- Semi-detached
- Townhouse
- Studio apartment

**Architectural  
elements**

- Arch
- Balconet
- Baluster
- Belt course
- Bressummer
- Ceiling
- Chimney
- Colonnade / Portico
- Column
- Cornice / Eaves
- Dome
- Door
- Ell
- Floor
- Foundation
- Gable
- Gate
  - Portal
- Lighting
- Ornament
- Plumbing
- Quoins
- Roof
  - shingles
- Roof lantern
- Sill plate
- Style
  - list
- Skylight
- Threshold
- Transom
- Vault
- Wall
- Window

## Related

- Backyard
- Driveway
- Front yard
- Garden
  - roof garden
- Home
- Home improvement
- Home repair
- Shed
- Tree house

-  Category: Rooms

## About Cook County

### Photo

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## Things To Do in Cook County

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### Photo

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## **Sand Ridge Nature Center**

**4.8 (96)**

**Photo**

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## **River Trail Nature Center**

**4.6 (235)**

**Photo**

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## **Palmisano (Henry) Park**

**4.7 (1262)**

## **Driving Directions in Cook County**

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**Driving Directions From Palmisano (Henry) Park to**

## Driving Directions From Lake Katherine Nature Center and Botanic Gardens to

## Driving Directions From Navy Pier to

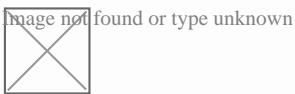
<https://www.google.com/maps/dir/Navy+Pier/United+Structural+Systems+of+Illinois%2C-87.6050944,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-87.6050944!2d41.8918633!1m5!1m1!1sChIJ-wSxDtinD4gRiv4kY3RRh9U!2m2!1d-88.1396465!2d42.0637725!3e0>

<https://www.google.com/maps/dir/Lake+Katherine+Nature+Center+and+Botanic+Gardens%2C-87.8010774,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-87.8010774!2d41.6776048!1m5!1m1!1sChIJ-wSxDtinD4gRiv4kY3RRh9U!2m2!1d-88.1396465!2d42.0637725!3e2>

<https://www.google.com/maps/dir/Palmisano+%28Henry%29+Park/United+Structural+Systems+of+Illinois%2C-87.6490151,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-87.6490151!2d41.8429903!1m5!1m1!1sChIJ-wSxDtinD4gRiv4kY3RRh9U!2m2!1d-88.1396465!2d42.0637725!3e1>

## Reviews for

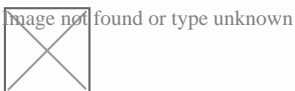
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**Jeffery James**

**(5)**

Very happy with my experience. They were prompt and followed through, and very helpful in fixing the crack in my foundation.

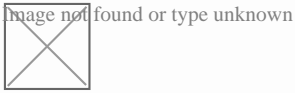


**Sarah McNeily**

**(5)**

USS was excellent. They are honest, straightforward, trustworthy, and conscientious. They thoughtfully removed the flowers and flower bulbs to dig where they needed in the yard, replanted said flowers and spread the extra dirt to fill

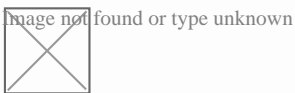
in an area of the yard. We've had other services from different companies and our yard was really a mess after. They kept the job site meticulously clean. The crew was on time and friendly. I'd recommend them any day! Thanks to Jessie and crew.



**Jim de Leon**

**(5)**

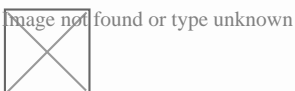
It was a pleasure to work with Rick and his crew. From the beginning, Rick listened to my concerns and what I wished to accomplish. Out of the 6 contractors that quoted the project, Rick seemed the MOST willing to accommodate my wishes. His pricing was definitely more than fair as well. I had 10 push piers installed to stabilize and lift an addition of my house. The project commenced at the date that Rick had disclosed initially and it was completed within the same time period expected (based on Rick's original assessment). The crew was well informed, courteous, and hard working. They were not loud (even while equipment was being utilized) and were well spoken. My neighbors were very impressed on how polite they were when they entered / exited my property (saying hello or good morning each day when they crossed paths). You can tell they care about the customer concerns. They ensured that the property would be put back as clean as possible by placing MANY sheets of plywood down prior to excavating. They compacted the dirt back in the holes extremely well to avoid large stock piles of soils. All the while, the main office was calling me to discuss updates and expectations of completion. They provided waivers of lien, certificates of insurance, properly acquired permits, and JULIE locates. From a construction background, I can tell you that I did not see any flaws in the way they operated and this an extremely professional company. The pictures attached show the push piers added to the foundation (pictures 1, 2 & 3), the amount of excavation (picture 4), and the restoration after dirt was placed back in the pits and compacted (pictures 5, 6 & 7). Please notice that they also sealed two large cracks and steel plated these cracks from expanding further (which you can see under my sliding glass door). I, as well as my wife, are extremely happy that we chose United Structural Systems for our contractor. I would happily tell any of my friends and family to use this contractor should the opportunity arise!



**Chris Abplanalp**

**(5)**

USS did an amazing job on my underpinning on my house, they were also very courteous to the proximity of my property line next to my neighbor. They kept things in order with all the dirt/mud they had to excavate. They were done exactly in the timeframe they indicated, and the contract was very details oriented with drawings of what would be done. Only thing that would have been nice, is they left my concrete a little muddy with boot prints but again, all-in-all a great job



**Dave Kari**

**(5)**

What a fantastic experience! Owner Rick Thomas is a trustworthy professional. Nick and the crew are hard working, knowledgeable and experienced. I interviewed every company in the area, big and small. A homeowner never wants to hear that they have foundation issues. Out of every company, I trusted USS the most, and it paid off in the end.



Highly recommend.

Managing Settlement with Targeted Soil Compaction [View GBP](#)

United Structural Systems of Illinois, Inc

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### **Google Business Profile**

Company Website : <https://www.unitedstructuralsystems.com/>

### USEFUL LINKS

### **Residential Foundation Repair Services**

### **home foundation repair service**

### **Foundation Repair Service**

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