



- **Understanding Expansive Clay and Its Impact on Foundations**  
**Understanding Expansive Clay and Its Impact on Foundations** Examining Sandy Loam for Residential Support Identifying Areas Vulnerable to Soil Erosion Evaluating Soil Moisture Fluctuations Beneath Homes Approaches for Chemical Soil Stabilization Techniques for Addressing Soil Heave Issues Managing Settlement with Targeted Soil Compaction Recognizing Soil Drainage Limitations Investigating Soil Stress Testing in Residential Sites Incorporating Root Barriers to Prevent Shifts Examining Seasonal Swelling and Shrinking of Soil Employing Sustainable Methods for Long Term Soil Health
- **Planning French Drains for Effective Water Control**  
**Planning French Drains for Effective Water Control** Setting Up Sump Pumps to Prevent Basement Flooding Extending Gutter Downspouts for Extra Protection Excavation Basics for Residential Construction Projects Coordinating Soil Compaction Methods on Site Limiting Erosion Through Proper Grading Techniques Evaluating Perimeter Drain Systems for Dry Foundations Installing Exterior Waterproof Barriers for Walls Adapting Site Plans to Local Rainfall Patterns Understanding Swale Placement for Controlled Water Flow Enhancing Overall Site Drainage with Gravel Trenches Minimizing Subsurface Water Accumulation Around Foundations
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## Overview of common residential foundation issues caused by excessive rainfall.

Certainly! Uneven floors may signal structural instability requiring professional repair service **foundation repair service areas** root cause analysis. Let's delve into the overview of common residential foundation issues caused by excessive rainfall and how adapting site plans to local rainfall patterns can mitigate these problems.

Excessive rainfall can wreak havoc on residential foundations, leading to a variety of issues that compromise the structural integrity of homes. One of the most prevalent problems is water infiltration, which occurs when rainwater seeps into the soil surrounding the foundation. This saturation leads to increased soil pressure against the foundation walls, causing cracks, bowing, or even collapse in severe cases.

Moreover, excessive moisture can lead to the deterioration of building materials. Wooden components, such as support beams and joists, are particularly susceptible to rot and decay when exposed to prolonged moisture. Similarly, masonry and concrete foundations can suffer from erosion and spalling, further exacerbating structural weaknesses.

Another common issue is differential settlement, where uneven distribution of water beneath the foundation causes portions of the structure to sink or shift. This can result in noticeable cracks in walls, uneven floors, and misaligned doors and windows, all of which are telltale signs of foundation distress.

To address these challenges, it's essential to adapt site plans to local rainfall patterns. This involves implementing strategies to manage stormwater runoff effectively and minimize its impact on residential foundations. One approach is to incorporate proper drainage systems, such as French drains and swales, which redirect water away from the foundation and prevent water accumulation.

Additionally, utilizing permeable materials for driveways, walkways, and landscaping can help facilitate groundwater infiltration and reduce surface runoff. Planting vegetation strategically around the property can also aid in absorbing excess rainfall and stabilizing soil, thereby minimizing erosion and runoff.

Furthermore, elevating the foundation above the surrounding grade or installing moisture barriers can provide added protection against water infiltration and moisture-related damage. Regular maintenance and inspection of the foundation and surrounding landscape are also crucial for early detection and mitigation of potential issues.

In conclusion, excessive rainfall poses significant threats to residential foundations, leading to a range of structural issues. By adapting site plans to local rainfall patterns and implementing appropriate drainage and landscaping strategies, homeowners can mitigate these risks and ensure the long-term stability and integrity of their homes.

## Analysis of local rainfall patterns and their impact on residential foundations.

Certainly! Here's a short essay on the topic "Adapting Site Plans to Local Rainfall Patterns" with a focus on the analysis of local rainfall patterns and their impact on residential foundations:

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When designing residential properties, it's crucial to consider the local climate and, more specifically, the rainfall patterns of the area. Understanding these patterns is not just about knowing how much it rains but also about recognizing the intensity, frequency, and seasonal distribution of rainfall. This knowledge is vital for adapting site plans to ensure the longevity and stability of residential foundations.

Local rainfall patterns can vary dramatically even within relatively small geographic areas. Some regions may experience heavy, monsoon-like rains during certain seasons, while others might have more consistent, lighter rainfall throughout the year. These differences significantly influence how water interacts with the soil and, consequently, the foundations of homes.

One of the primary concerns with heavy rainfall is soil saturation. When the ground becomes overly saturated, it can lead to a phenomenon known as soil liquefaction, where the soil loses its strength and stiffness. This can cause the ground to become unstable, potentially leading to foundation settling or even structural failure. Moreover, excessive moisture can lead to the growth of mold and mildew, which pose health risks to residents and can deteriorate building materials over time.

To mitigate these risks, site plans must be thoughtfully adapted. This might involve incorporating advanced drainage systems that efficiently redirect water away from the foundation. Additionally, the use of permeable materials for driveways and walkways can help reduce surface runoff and allow water to penetrate the ground more gradually. Elevating the structure above potential flood levels is another effective strategy, particularly in areas prone to heavy rains or with high water tables.

Furthermore, the choice of foundation type can be influenced by local rainfall patterns. For instance, in areas with significant rainfall, a slab-on-grade foundation might be less suitable due to its vulnerability to moisture. Instead, a raised foundation or pier and beam system could provide better protection against water damage.

In conclusion, adapting site plans to local rainfall patterns is a multifaceted approach that requires a deep understanding of the area's climate, soil composition, and water management practices. By taking these factors into account, architects and builders can create more resilient and sustainable residential properties that withstand the test of time and the elements.

## **Strategies for modifying site plans to mitigate the effects of heavy rainfall on foundations.**

When it comes to adapting site plans to local rainfall patterns, especially in areas prone to heavy rainfall, it's essential to implement strategies that mitigate the effects on foundations. This not only ensures the longevity and stability of structures but also promotes sustainable development practices.

One effective strategy is the incorporation of robust drainage systems within the site plan. This includes the design of swales, retention ponds, and French drains that efficiently channel excess water away from the building foundations. By redirecting water flow, these systems prevent water from pooling around the base of structures, which can lead to foundation erosion and compromise structural integrity.

Another approach is the use of permeable materials for paving and walkways. Materials such as gravel, porous asphalt, and permeable pavers allow water to seep through rather than run off the surface. This reduces the amount of water that could potentially saturate the soil around foundations, thereby minimizing the risk of water-related foundation issues.

Elevating structures above the anticipated flood levels is also a critical consideration. This strategy involves raising the building's foundation to ensure that it remains above the water table during heavy rainfall events. While this may require additional investment, it offers long-term benefits by safeguarding the structure from water damage.

Incorporating green infrastructure into site plans is another innovative strategy. Green roofs, rain gardens, and bioswales not only enhance the aesthetic appeal of a site but also serve as natural water absorption systems. These features help to reduce surface runoff, allowing water to be absorbed into the ground more gradually, thus lessening the pressure on foundations.

Lastly, conducting a thorough site analysis to understand the local rainfall patterns, soil composition, and water table levels is fundamental. This information guides the selection of appropriate strategies and ensures that the site plan is tailored to the specific environmental conditions.

In conclusion, adapting site plans to local rainfall patterns through the implementation of drainage systems, permeable materials, elevated structures, green infrastructure, and informed site analysis plays a crucial role in mitigating the effects of heavy rainfall on foundations. These strategies not only protect the built environment but also contribute to sustainable development practices by promoting water conservation and management.

## **Case studies of successful adaptations of site plans in areas with high rainfall.**

Adapting site plans to local rainfall patterns is a critical aspect of sustainable urban planning, particularly in regions that experience high rainfall. Case studies of successful adaptations highlight innovative strategies that mitigate flood risks, enhance water management, and promote environmental resilience. This essay explores several exemplary case studies that demonstrate effective adaptations of site plans in areas with high rainfall.

One notable case study is the transformation of the Cheonggyecheon Stream in Seoul, South Korea. Once a concrete-covered highway, the Cheonggyecheon was restored to its natural state as a stream running through the heart of the city. This revitalization project included the creation of an extensive rainwater drainage system that captures and filters stormwater, reducing flood risks during heavy rains. The project also incorporated green spaces and permeable surfaces, which help absorb rainwater and improve groundwater recharge. The success of the Cheonggyecheon restoration lies in its holistic approach, combining environmental restoration with urban beautification and flood management.

Another compelling example is the Singapore Bishan-Ang Mo Kio Park. Originally a conventional concrete canal, the park was redesigned to incorporate a meandering river and extensive wetlands. This transformation not only enhanced the aesthetic and recreational value of the site but also significantly improved its ability to manage stormwater. The park's design includes bioswales, rain gardens, and detention ponds that collect and slowly release rainwater, reducing the burden on the city's drainage system. The Bishan-Ang Mo Kio Park exemplifies how integrating natural water management features into urban landscapes can create resilient and sustainable environments.

In Portland, Oregon, the Green Streets Program offers a grassroots approach to adapting site plans for high rainfall areas. The program encourages the conversion of traditional streets into greenways that include rain gardens, bioswales, and permeable pavements. These features capture and filter stormwater, reducing runoff and improving water quality in local waterways. The Green Streets Program has been successful in engaging community members in the planning and maintenance of these green infrastructure elements, fostering a sense of ownership and stewardship among residents.

Lastly, the Float Parade Grounds in New Orleans provide an innovative solution to flooding in a city prone to heavy rainfall and hurricanes. The parade grounds, which host Mardi Gras celebrations, are designed to float on water during floods, preventing damage to the structures and ensuring their usability even during extreme weather events. This adaptive design not only protects the cultural heritage of the city but also serves as a model for resilient infrastructure in high-rainfall areas.

These case studies illustrate the diverse strategies available for adapting site plans to local rainfall patterns. By incorporating green infrastructure, restoring natural water systems, and designing resilient structures, urban planners can create environments that are both sustainable and adaptable to the challenges posed by high rainfall. These successful adaptations not only mitigate flood risks but also enhance the quality of urban life, demonstrating the profound impact of thoughtful and innovative site planning.

## **Discussion on the role of drainage systems in protecting residential foundations from water damage.**

Certainly!

When it comes to safeguarding residential foundations from water damage, understanding and implementing effective drainage systems is crucial, especially when adapting site plans to local rainfall patterns. Rainfall can vary significantly from one region to another, influencing how water moves across and into the ground. Therefore, local rainfall patterns must be meticulously considered in the design and execution of drainage systems to ensure homes remain structurally sound and dry.

Drainage systems play a pivotal role in directing excess water away from the foundation of a house. When heavy rains occur, without proper drainage, water can accumulate around the foundation, leading to issues such as basement flooding, mold growth, and even foundational cracks. The key to an effective drainage system lies in its ability to efficiently channel water away from the home, preventing it from seeping into the basement or crawl space.

One of the primary components of a drainage system is the gutters and downspouts. These are designed to collect rainwater from the roof and direct it away from the house. However, simply having gutters is not enough; they must be correctly sized and maintained to handle the volume of rainwater expected in the area. In regions with heavy rainfall, larger gutters and more downspouts may be necessary to ensure that water is effectively diverted away from the foundation.

Another critical aspect is the grading of the land surrounding the home. Proper grading involves sloping the ground away from the foundation to facilitate water runoff. This natural inclination helps prevent water from pooling near the house. In areas with high rainfall, it might be necessary to install french drains-subterranean channels filled with gravel-to further aid in water diversion. These drains can be especially effective in moving water away from the foundation, even when the surface grading is less than ideal.

Additionally, permeable paving and rain gardens can be incorporated into site plans to manage rainfall more sustainably. Permeable paving allows water to seep through the surface and into the ground, reducing runoff. Rain gardens, on the other hand, are landscaped areas planted with native vegetation that can absorb and filter rainwater. These features not only enhance the aesthetic appeal of a property but also contribute to effective water management.

In conclusion, the role of drainage systems in protecting residential foundations from water damage cannot be overstated. By carefully adapting site plans to local rainfall patterns and implementing a combination of gutters, proper grading, french drains, and sustainable landscaping features, homeowners can significantly reduce the risk of water-related damage. This proactive approach ensures that homes remain safe, dry, and structurally

intact, even in the face of heavy rainfall.

## **Recommendations for homeowners on how to assess and adapt their site plans based on local rainfall patterns.**

When it comes to planning and maintaining a property, understanding and adapting to local rainfall patterns is crucial. Homeowners can significantly enhance their site plans by considering how much rain their area typically receives and how that rain behaves. Here are some practical recommendations for assessing and adapting your site plan based on local rainfall patterns.

Firstly, gather information about your local climate. Many resources are available online, including local meteorological services and gardening websites, which provide detailed rainfall data. Knowing the average annual rainfall and the distribution throughout the year can help you make informed decisions about your site plan.

Next, consider the topography of your property. If your land is sloped, rainwater will naturally flow downhill. This can lead to erosion in some areas and waterlogging in others. To mitigate these issues, you might need to implement terracing, create swales, or install drainage systems to manage the flow of water more effectively.

Incorporating native plants into your landscape is another excellent strategy. Native plants are adapted to local rainfall patterns and soil conditions, making them more resilient and requiring less maintenance. They can also help with water absorption and reduce runoff.

Rainwater harvesting is a practical adaptation for many homeowners. Installing rain barrels or cisterns can capture and store rainwater for later use in irrigation. This not only conserves water but also reduces the burden on municipal water systems during heavy rainfall periods.

Permeable paving is another adaptation worth considering. Traditional concrete and asphalt surfaces contribute to runoff problems. By opting for permeable materials, you allow rainwater to seep into the ground, reducing erosion and improving groundwater recharge.

Finally, regularly review and adjust your site plan as needed. Rainfall patterns can change over time due to climate variability, so staying informed and flexible is key to maintaining a healthy and sustainable property.

In conclusion, by assessing local rainfall patterns and making thoughtful adaptations to your site plan, you can create a more resilient and sustainable home environment. These strategies not only enhance the beauty and functionality of your property but also contribute to broader environmental benefits.



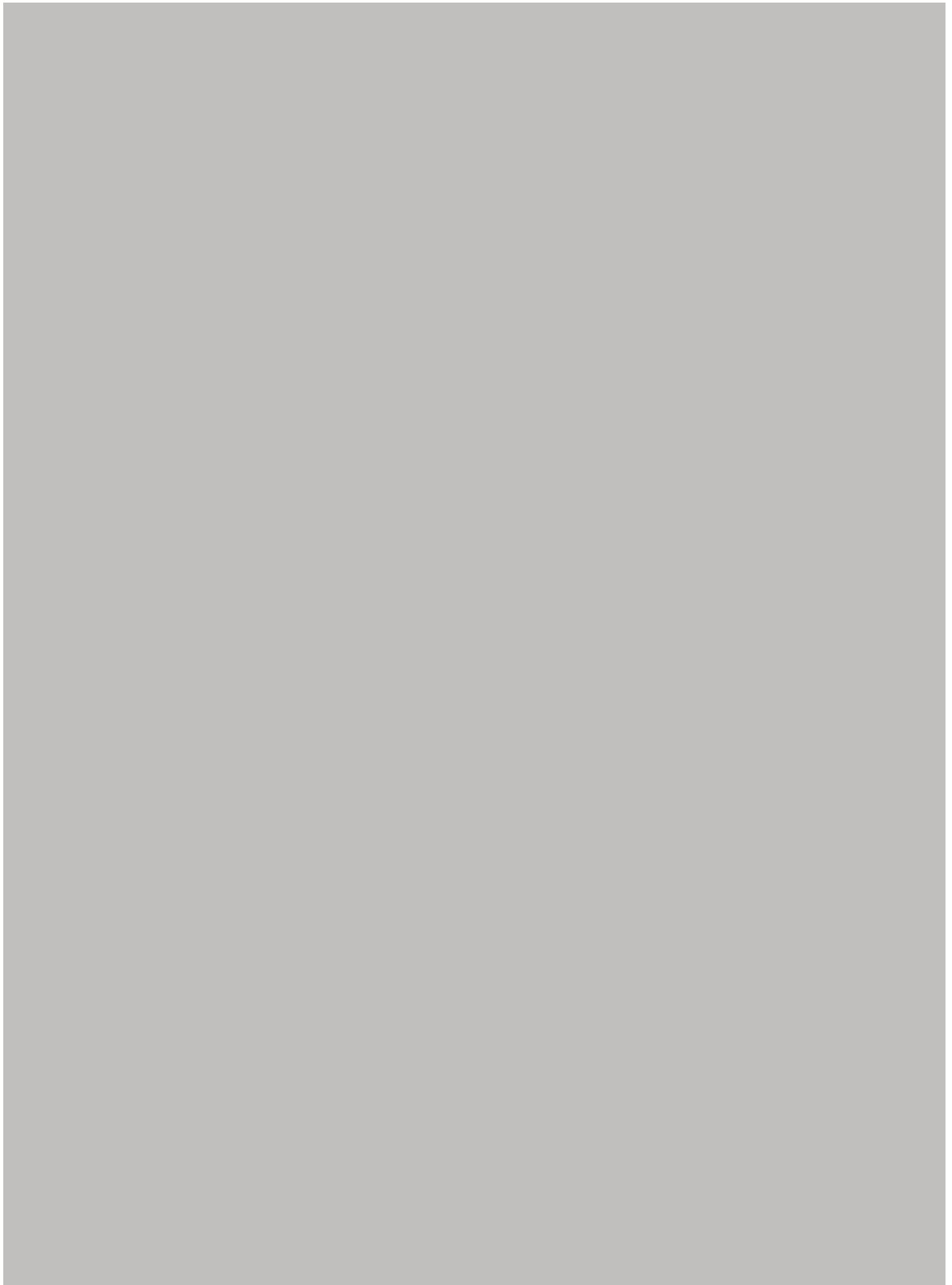
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## **Residential Foundation Repair Services**



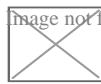
**Strong Foundations, Strong Homes**



## About basement waterproofing

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*Find sources: "Basement waterproofing" – news · newspapers · books · scholar · JSTOR (April 2017) (Learn how and when to remove this message)*

**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.

## References

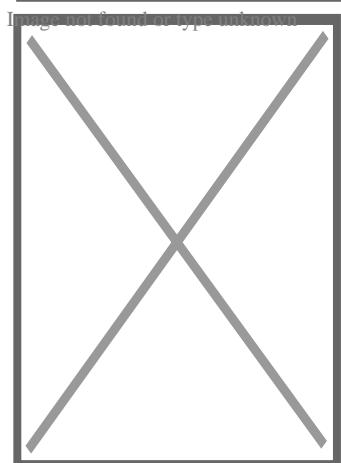
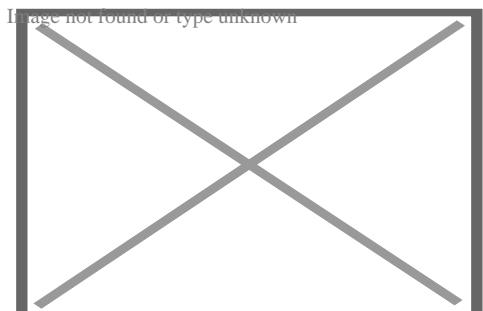
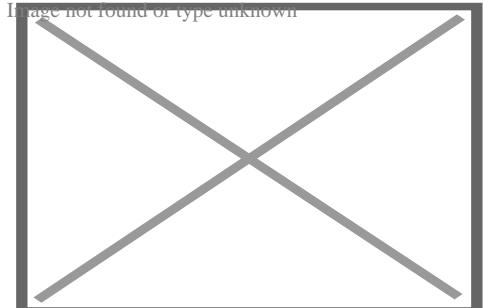
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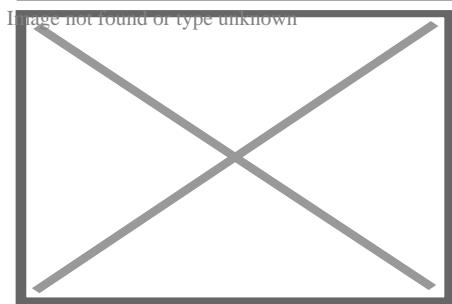
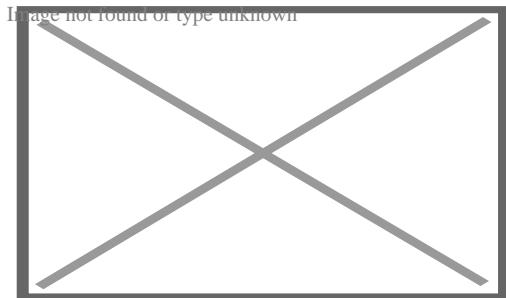
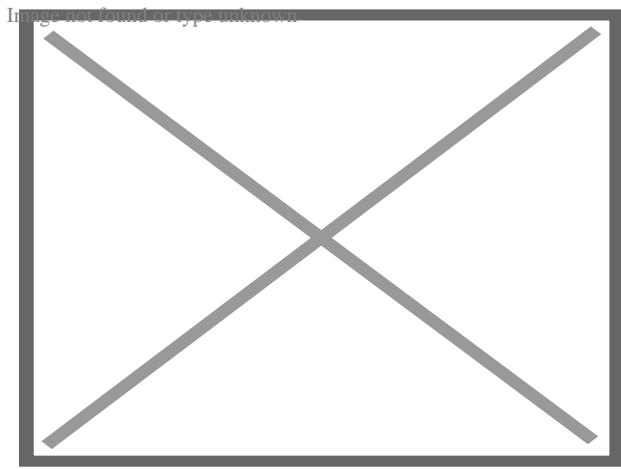
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2. ^ "FloodSmart | How to Prepare for a Flood and Minimize Losses". Archived from the original on 9 May 2020. Retrieved 20 March 2020.

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## About ceiling

For other uses, see [Ceiling \(disambiguation\)](#).





Various examples of ornate ceilings

A **ceiling** /ˈsiːlɪŋ/ is an overhead interior roof that covers the upper limits of a room. It is not generally considered a structural element, but a finished surface concealing the underside of the roof structure or the floor of a story above. Ceilings can be decorated to taste, and there are many examples of frescoes and artwork on ceilings, especially within religious buildings. A ceiling can also be the upper limit of a tunnel.

The most common type of ceiling is the dropped ceiling, *[citation needed]* which is suspended from structural elements above. Panels of drywall are fastened either directly to the ceiling joists or to a few layers of moisture-proof plywood which are then attached to the joists. Pipework or ducts can be run in the gap above the ceiling, and insulation and fireproofing material can be placed here. Alternatively, ceilings may be spray painted instead, leaving the pipework and ducts exposed but painted, and using spray foam.

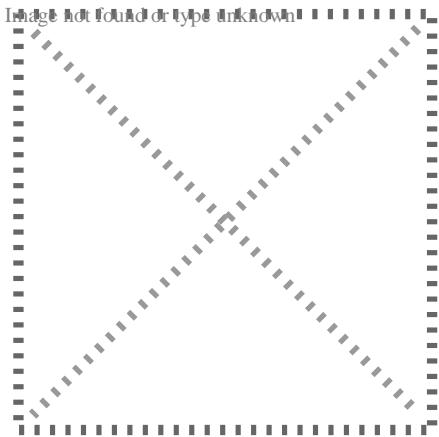
A subset of the dropped ceiling is the suspended ceiling, wherein a network of aluminum struts, as opposed to drywall, are attached to the joists, forming a series of rectangular spaces. Individual pieces of cardboard are then placed inside the bottom of those spaces so that the outer side of the cardboard, interspersed with aluminum rails, is seen as the ceiling from below. This makes it

relatively easy to repair the pipes and insulation behind the ceiling, since all that is necessary is to lift off the cardboard, rather than digging through the drywall and then replacing it.

Other types of ceiling include the cathedral ceiling, the concave or barrel-shaped ceiling, the stretched ceiling and the coffered ceiling. Coving often links the ceiling to the surrounding walls. Ceilings can play a part in reducing fire hazard, and a system is available for rating the fire resistance of dropped ceilings.

## Types

[edit]



California tract home with an open-beam ceiling, 1960

Ceilings are classified according to their appearance or construction. A cathedral ceiling is any tall ceiling area similar to those in a church. A dropped ceiling is one in which the finished surface is constructed anywhere from a few inches or centimeters to several feet or a few meters below the structure above it. This may be done for aesthetic purposes, such as achieving a desirable ceiling height; or practical purposes such as acoustic damping or providing a space for HVAC or piping. An inverse of this would be a raised floor. A concave or barrel-shaped ceiling is curved or rounded upward, usually for visual or acoustical value, while a coffered ceiling is divided into a grid of recessed square or octagonal panels, also called a "lacunar ceiling". A cove ceiling uses a curved plaster transition between wall and ceiling; it is named for cove molding, a molding with a concave curve.<sup>[1]</sup> A stretched ceiling (or stretch ceiling) uses a number of individual panels using material such as PVC fixed to a perimeter rail.<sup>[2]</sup>

## Elements

[edit]

Ceilings have frequently been decorated with fresco painting, mosaic tiles and other surface treatments. While hard to execute (at least in place) a decorated ceiling has the advantage that it is largely protected from damage by fingers and dust. In the past, however, this was more than compensated for by the damage from smoke from candles or a fireplace. Many historic buildings have celebrated ceilings. Perhaps the most famous is the Sistine Chapel ceiling by Michelangelo.

Ceiling height, particularly in the case of low ceilings, may have psychological impacts. [3]

## Fire-resistance rated ceilings

[edit]

The most common ceiling that contributes to fire-resistance ratings in commercial and residential construction is the dropped ceiling. In the case of a dropped ceiling, the rating is achieved by the entire system, which is both the structure above, from which the ceilings are suspended, which could be a concrete floor or a timber floor, as well as the suspension mechanism and, finally the lowest membrane or dropped ceiling. Between the structure that the dropped ceiling is suspended from and the dropped membrane, such as a T-bar ceiling or a layer of drywall, there is often some room for mechanical and electrical piping, wiring and ducting to run.

An independent ceiling, however, can be constructed such that it has a stand-alone fire-resistance rating. Such systems must be tested without the benefit of being suspended from a slab above in order to prove that the resulting system is capable of holding itself up. This type of ceiling would be installed to protect items above from fire.

An unrestrained non-loadbearing ceiling undergoing a 4-hour fire test. Deflection is measured off the I-beam.

○

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An unrestrained non-loadbearing ceiling undergoing a 4-hour fire test. Deflection is measured off the I-beam.

○ Durasteel ceiling after successful fire test, being raised from the furnace and readied for an optional

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Durasteel ceiling after successful fire test, being raised from the furnace and readied for an optional 45PSI (3.1 bar) hose-stream test.

## Gallery

### [edit]

- Gothic ceiling in the Sainte-Chapelle, Paris, 1243-1248, by Pierre de Montreuil[4]

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Gothic ceiling in the Sainte-Chapelle,  
Paris, 1243-1248, by Pierre de Montreuil[  
4]

Renaissance ceiling of the Henry II staircase in the Louvre Palace, Paris, by Étienne Carmoy, Ra

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Renaissance  
ceiling of the  
Henry II  
staircase in the  
Louvre Palace,  
Paris, by  
Étienne Carmoy,  
Raymond  
Bidollet, Jean  
Chrestien and  
François  
Lheureux, 1553[  
5]

o

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Renaissance ceiling  
of the king's  
bedroom in the  
Louvre Palace, by  
Francisque Scibecq  
de Carpi, 1556<sup>[6]</sup>

- o Baroque ceiling of the Salle des Saisons in the Louvre Palace, by Giovanni Francesco Romanelli, M

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Baroque  
ceiling of the  
Salle des  
Saisons in the  
Louvre Palace,  
by Giovanni  
Francesco  
Romanelli,  
Michel Anguier  
and Pietro  
Sasso, mid  
17th century<sup>[7]</sup>

- Neoclassical ceiling of the Salle Duchâtel in the Louvre Palace, with The Triumph of French Painting.

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**Neoclassical ceiling of the Salle Duchâtel in the Louvre Palace, with The Triumph of French Painting.**  
Apotheosis of Poussin, Le Sueur and Le Brun in the centre, by Charles Meynier, 1822, and ceilings panels with medallion portraits of French painters, 1828-1833<sup>[8]</sup>

- Neoclassical ceiling of the Mollien staircase in the Louvre Palace, designed by Hector Lefuel in 1857 and painted by Charles Louis Müller in 1868-1870<sup>[9]</sup>

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**Neoclassical ceiling of the Mollien staircase in the Louvre Palace, designed by Hector Lefuel in 1857 and painted by Charles Louis Müller in 1868-1870<sup>[9]</sup>**

Moorish Revival ceiling in the Nicolae T. Filitti/Nae Filitis House (Calea Dorobanăilor no. 18), Bucharest, Romania, de Ernest Doneaud, c.1910[10]

○

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**Moorish Revival ceiling in the  
Nicolae T. Filitti/Nae Filitis House  
(Calea Dorobanăilor no. 18),  
Bucharest, Romania, de Ernest  
Doneaud, c.1910[10]**

Demonstrative reconstruction of a Roman suspended ceiling in an Imperial palace of circa AD 306 at

○

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**Demonstrative  
reconstruction of a  
Roman suspended  
ceiling in an  
Imperial palace of  
circa AD 306 at  
Trier, Italy**

○ Part of the ceiling of the Sistine Chapel in Vatican City in Rome, showing the ceiling in relation to the other frescoes

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**Part of the ceiling of the Sistine  
Chapel in Vatican City in Rome,  
showing the ceiling in relation to the  
other frescoes**

Ceiling of the Villa Schutzenberger from Strasbourg, France, decorated with Art Nouveau ornaments

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**Ceiling of the Villa Schutzenberger from  
Strasbourg, France, decorated with Art  
Nouveau ornaments**

o Painted ceiling in Liège, Belgium

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**Painted ceiling in Liège,  
Belgium**

o Traditional Chinese ceiling of Dayuan Renshou Temple at Taoyuan, Taiwan

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**Traditional Chinese ceiling of  
Dayuan Renshou Temple at  
Taoyuan, Taiwan**

- Dropped ceiling

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### Dropped ceiling

- Wooden beam ceiling

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### Wooden beam ceiling

## See also

[edit]

- Beam ceiling
- Hammerbeam roof
- Hollow-core slab
- Moulding (decorative)
- Popcorn ceiling
- Scottish Renaissance painted ceilings
- Tin ceiling
- Passive fire protection
- Fire test
- Hy-Rib

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- ["Ceiling" . Encyclopædia Britannica. Vol. 5 \(11th ed.\). 1911.](#)
- ["Ceiling" . New International Encyclopedia. 1904.](#)
- [Merriam-Webster ceiling definition](#)

- 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

### **Shared rooms**

- Living room
- Gynaecum
  - harem
- Andron
  - man cave
- Recreation room
  - billiard room
- Shrine
- Study
- Sunroom

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

### **Private rooms**

## **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

- 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

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

## Great house areas

## Other

## **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

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

## Related

-  [Category:Rooms](#)

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## Things To Do in Cook County

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**Sand Ridge Nature Center**

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**River Trail Nature Center**

**4.6 (235)**

### Photo

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

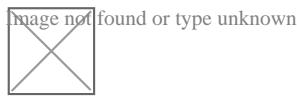
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## Reviews for

---



Jeffery James

(5)

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

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**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.

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**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!

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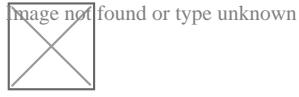


**Chris Abplanalp**

**(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.

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