*** Sandy loam composition and its prevalence in residential areas.**

Okay, so you're thinking about sandy loam, huh? Helical piers provide strong support for homes needing foundation repair expert service foundation repair service areas fracture. It's kind of a big deal when you're talking about soil, especially if you're dealing with a yard or garden. Basically, sandy loam is a soil mix that's got a good balance of sand, silt, and clay. Think of it like this: sand gives it that grainy feel and helps with drainage, silt brings in some finer particles and nutrients, and clay, well, clay helps hold things together and retain moisture. The "loam" part just means it's a pretty even-keeled blend, not too much of any one thing.

Now, why is it so prevalent in residential areas? Well, for starters, it's often considered a pretty good soil for growing things. That balance of drainage and moisture retention is key for a lot of plants. Plus, it's generally easier to work with than, say, heavy clay soil. You can dig in it without feeling like you're wrestling a brick.

You'll often find sandy loam in developed areas because it might be the naturally occurring soil type, or it could have been brought in during construction or landscaping. When houses are built, the original soil can get compacted or stripped away, and builders will often replace it with something more suitable for lawns and gardens... and sandy loam is frequently a popular choice. It's just a generally forgiving and versatile soil that tends to make life a little easier for homeowners.

*** How sandy loam affects water infiltration and drainage near foundations.**

Okay, so you've got a house, and you're thinking about the soil around the foundation. Smart move! Let's talk about sandy loam and how it messes (or maybe helps!) with water.

Sandy loam, unlike pure sand or heavy clay, is a mix. It's got sand, silt, and a bit of clay. That's important because that blend affects how water behaves. Think of it this way: sand on its own drains like crazy, water zips right through. Clay, on the other hand, holds onto water for dear life, making it slow to drain. Sandy loam is somewhere in the middle.

Near your foundation, this means a few things. Because of the sand content, water infiltration – how quickly water soaks *into* the soil – is generally pretty good with sandy loam. Rain or sprinkler water won't just sit on the surface. It'll go in. That's often a good thing.

But here's the potential rub: good infiltration doesn't always equal good drainage *away* from the foundation. While sandy loam drains better than a pure clay soil, it can still hold onto enough water to cause problems. If the soil is constantly damp near the foundation, you're looking at potential issues with hydrostatic pressure (water pushing against the walls) and increased risk of leaks or even foundation damage over time.

The key is to think about *how much* water is getting in and *where* it's going. If you have sandy loam right next to your foundation, but the surrounding area doesn't slope away properly, or if you have poor drainage like clogged gutters sending water cascading down next to the house, that sandy loam will

just become a sponge holding moisture against your foundation.

So, sandy loam itself isn't inherently bad for foundations. It's all about context. Good infiltration is usually a plus, but you need to ensure proper grading, functioning downspouts, and potentially even a French drain system to manage the water and direct it *away* from the foundation. Think of sandy loam as part of the solution, but not the whole solution. You still need to be smart about overall water management.

*** Identifying drainage issues related to sandy loam soil.**

Okay, so you're dealing with sandy loam soil and trying to figure out drainage problems, huh? It's a bit of a Goldilocks situation, this sandy loam. It's not pure sand, which drains like a sieve, and it's not heavy clay, which holds water forever. Sandy loam is supposed to be "just right," a mix of sand, silt, and a little bit of clay that allows for decent drainage while still retaining enough moisture for plants to thrive.

But "supposed to" and "reality" aren't always the same thing, are they? Even with that balanced composition, sandy loam can still run into drainage issues. The tricky part is figuring out *why*.

One common culprit is compaction. Think about walking or driving over the soil repeatedly. That pressure squishes the soil particles together, reducing the spaces between them. Those spaces are what allow water to flow through the soil. Less space, less flow. Even sandy loam, with its inherent drainage advantage, can become practically impermeable if it's compacted enough. You might notice water pooling on the surface after rain, or plants struggling even though you're watering them.

Another potential problem is a hardpan layer. This is a dense, compacted layer of soil that forms below the surface. It can be caused by tillage practices, naturally occurring mineral deposits, or even just the weight of the soil above. The hardpan acts like a barrier, preventing water from draining down into the deeper soil layers. You might not see surface pooling, but the soil above the hardpan will stay waterlogged, suffocating plant roots. Digging a test pit is the best way to check for a hardpan.

And let's not forget about the obvious: the slope of the land. Even the best soil in the world won't drain properly if the land is flat or slopes inward, creating a low spot where water collects. In that case, you're not really dealing with a soil issue as much as a landscape issue.

Identifying the specific cause is key. Look for clues: is the soil compacted? Is there a visible layer preventing drainage? Is the landscape contributing to the problem? Once you know the "why," you can start thinking about solutions, like amending the soil with organic matter, breaking up compacted layers, or improving the overall drainage of the area. It's a bit of detective work, but understanding what's going on beneath your feet is the first step to happy plants and a healthy garden.

*** The impact of poor drainage on foundation stability in sandy loam environments.**

Okay, so we're talking about sandy loam – that lovely, relatively easy-to-work soil that's kind of the Goldilocks of soil types. It's not too sandy, not too clayey, but just right for a lot of things. But even

Goldilocks soil has its quirks, and one of the biggest potential headaches, especially when we're thinking about buildings, is drainage. Or rather, the lack thereof.

Think about it this way: sandy loam *can* drain pretty well, better than heavy clay for sure. But it's not pure sand. It's got enough silt and clay particles mixed in to hold onto water. And that water, when it's not draining away properly, can become a real problem for foundations. In a sandy loam environment where drainage is poor, you're essentially creating a little swampy area right next to, or even under, your house.

What happens then? Well, for starters, you've got hydrostatic pressure. That's the force of the water itself pushing against the foundation walls. Over time, that constant pressure can cause cracks, bowing, and even structural failure. It's like a slow, relentless siege against your home.

Then there's the freeze-thaw cycle. When the temperature drops below freezing, the water in the soil expands. This expansion puts even more pressure on the foundation. When it thaws, the ground shifts again. This repeated expansion and contraction can really weaken the concrete over time, leading to cracks and instability.

And let's not forget about soil erosion. Poor drainage can lead to water flowing in uncontrolled ways around the foundation, carrying away soil and creating voids. These voids can undermine the foundation, causing it to settle unevenly and potentially leading to serious structural damage.

So, while sandy loam might seem like a pretty forgiving soil, it's crucial to make sure drainage is properly managed. Good grading, French drains, and proper landscaping can make all the difference between a stable foundation and a very expensive problem down the road. It's all about understanding the soil's properties and making sure water doesn't become the enemy of your home.

*** Common foundation problems linked to water accumulation in sandy loam.**

Okay, so you've got sandy loam, which sounds lovely, right? Like a beach that actually wants to grow something. But even this seemingly perfect soil mix has its quirks, and one of the biggest is dealing with water. Now, sandy loam drains pretty well, that's its selling point. But "pretty well" isn't "perfectly." When water builds up around your foundation – even in soil that's mostly sand – you can run into some serious headaches.

Think about it: water expands when it freezes. If you're in a place with cold winters, that expanding water can put immense pressure on your foundation walls. Over time, this pressure can lead to cracks, shifts, and all sorts of structural nastiness. Even without freezing temperatures, consistently damp soil can soften the ground under your foundation. This can cause settling, where one part of your house sinks more than another, leading to more cracks, sticking doors, and generally unhappy house vibes.

Plus, excess water in the soil can seep into your basement or crawl space. Damp environments are a breeding ground for mold and mildew, which aren't just unsightly; they can be harmful to your health. And let's not forget about the increased risk of pests like termites, who thrive in moist conditions and can wreak havoc on wooden structures.

So, even with the relatively good drainage of sandy loam, it's crucial to pay attention to water management around your home. Proper grading, good drainage systems like French drains, and making sure your gutters are clear are all essential to keeping your foundation happy and dry. Ignoring this aspect can turn that idyllic sandy loam into a source of some seriously expensive and stressful problems down the road.

*** Foundation repair solutions for issues caused by sandy loam drainage.**

Okay, so you've got sandy loam. Sounds kinda nice, right? Beachy, even. But when it comes to your foundation, that "nice" can quickly turn into a nightmare if the drainage isn't playing ball. See, sandy loam is this mix – a bit of sand, a bit of silt, and a little clay thrown in for good measure. That sand gives it good drainage, usually. But "usually" is the key word here.

The problem arises when that drainage isn't *uniform*. Maybe you've got some spots where the clay content is higher, or maybe the soil is compacted in certain areas. Suddenly, water's pooling, running off in unexpected ways, and generally wreaking havoc on the soil around your foundation.

What kind of havoc, you ask? Well, think about it. Waterlogged soil expands. Then it dries out and contracts. This constant push and pull puts pressure on your foundation walls. Over time, that pressure can cause cracks, settling, even bowing walls. And let me tell you, those aren't just cosmetic issues. They're signs of serious structural problems.

The solutions? They depend on the specific problem, of course. If it's simply poor surface drainage, re-grading the yard to slope away from the foundation might be enough. French drains can be installed to redirect water away from the foundation footings. If the problem is more severe, like significant settling, you might need underpinning – basically, strengthening the foundation with piers or piles that reach down to more stable soil. Sometimes, it's as simple as fixing gutters and downspouts, ensuring they're properly directing water away.

The key takeaway is this: understanding how sandy loam behaves around your foundation, and recognizing the signs of drainage problems early, can save you a lot of headaches (and money) down the line. Don't ignore those cracks! Get a professional assessment to figure out the root cause and find the right foundation repair solution. It's an investment in the long-term health of your home.

*** Preventing future foundation damage through improved drainage systems.**

Okay, so we've been talking about sandy loam and how it drains, right? That's all well and good, understanding the theory. But what about the real world? What about your house? Because let's face it, nobody wants a flooded basement or a cracked foundation. That's where thinking about preventing future foundation damage through improved drainage systems comes in.

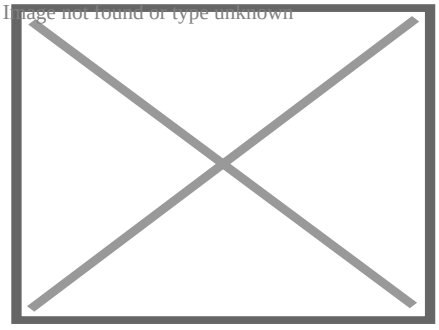
Think of it this way: sandy loam, even though it drains better than clay, can still become saturated. Especially during heavy rains. And when the soil around your foundation is constantly wet, it can cause all sorts of problems. The soil expands and contracts, putting pressure on the concrete. Freeze-thaw cycles make things even worse. Over time, this can lead to cracks, settling, and all sorts of expensive headaches.

So, what's the solution? It's not just about understanding the soil, it's about managing the water. We need to think about how to move water away from the foundation quickly and efficiently. This might involve things like grading the land around your house so that water flows away, installing French drains to intercept groundwater, or making sure your gutters and downspouts are working properly and extending far enough away from the foundation.

It's not rocket science, but it does require some planning and maybe a little investment. But trust me, spending a little money on improving your drainage now is a whole lot cheaper than dealing with foundation repairs later. It's about being proactive, about understanding the properties of sandy loam and using that knowledge to protect your biggest investment: your home. Think of it as insurance, but instead of paying a premium, you're building a healthier, drier foundation, giving yourself peace of mind for years to come.

About home improvement

For the 1990s sitcom, see Home Improvement (TV series). For other uses, see Home improvement (disambiguation).



Merchandise on display in a hardware store

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The concept of **home improvement**, **home renovation** or **remodeling** is the process of renovating, making improvements or making additions to one's home.[1] Home improvement can consist of projects that upgrade an existing home interior (such as electrical and

plumbing), exterior (masonry, concrete, siding, roofing) or other improvements to the property (i.e. garden work or garage maintenance/additions). Home improvement projects can be carried out for a number of different reasons; personal preference and comfort, maintenance or repair work, making a home bigger by adding rooms/spaces, as a means of saving energy, or to improve safety.[2]

Types of home improvement

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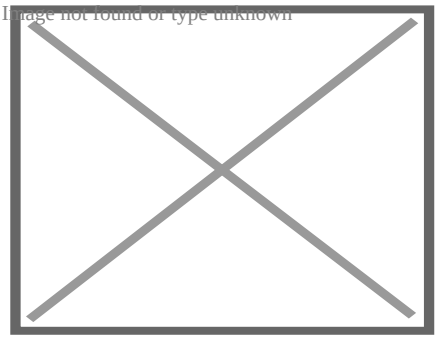

Man painting a fence

While "home improvement" often refers to building projects that alter the structure of an existing home, it can also include improvements to lawns, gardens, and outdoor structures, such as gazebos and garages. It also encompasses maintenance, repair, and general servicing tasks. Home improvement projects generally have one or more of the following goals:[*citation needed*]

Comfort

[edit]

- Upgrading heating, ventilation and air conditioning systems (HVAC).
- Upgrading rooms with luxuries, such as adding gourmet features to a kitchen or a hot tub spa to a bathroom.
- Increasing the capacity of plumbing and electrical systems.
- Waterproofing basements.
- Soundproofing rooms, especially bedrooms and baths.

Maintenance and repair

[edit]

Maintenance projects can include:

- Roof tear-off and replacement.
- Replacement or new construction windows.
- Concrete and masonry repairs to the foundation and chimney.
- Repainting rooms, walls or fences
- Repairing plumbing and electrical systems
- Wallpapering
- Furniture polishing
- Plumbing, home interior and exterior works
- Shower maintenance

Additional space

[edit]

Additional living space may be added by:

- Turning marginal areas into livable spaces such as turning basements into recrooms, home theaters, or home offices – or attics into spare bedrooms.
- Extending one's house with rooms added to the side of one's home or, sometimes, extra levels to the original roof. Such a new unit of construction is called an "add-on".[3]

Saving energy

[edit]

Homeowners may reduce utility costs with:

- Energy-efficient thermal insulation, replacement windows, and lighting.
- Renewable energy with biomass pellet stoves, wood-burning stoves, solar panels, wind turbines, programmable thermostats,[4] and geothermal exchange heat pumps (see

autonomous building).

Safety, emergency management, security and privacy

[edit]

The need to be safer or for better privacy or emergency management can be fulfilled with diversified measures which can be improved, maintained or added. Secret compartments and passages can also be conceived for privacy and security.

- Interventions for fire protection and avoidance. Possible examples are fire sprinkler systems for automatic fire suppression, smoke detectors for fire detection, fire alarm systems, or passive fire protection (including some wildfire management strategies).
- Technical solutions to increase protection from natural disasters, or geotechnical and structural safety (e.g. hurricane or seismic retrofit).
- Interventions and additions to increase home safety from other hazards, like falls, electric injuries, gas leaks or home exposure to environmental health concerns.
- Physical security measures:
  - Access control systems and physical barriers, which can include fences, physical door and window security measures (e.g. grilles, laminated glass, window shutters), locks;
  - Security lighting, security alarms and video surveillance.
- Safes and vaults.
- Spaces for emergency evacuation, like emergency exits and rarer escape tunnels.
- Spaces which provide protection in the event of different emergencies: areas of refuge, storm cellars (as protection from tornadoes and other kinds of severe weather), panic rooms, bunkers and bomb shelters (including fallout shelters), etc.
- Home renovations or additions used to increase privacy can be as simple as curtains or much more advanced, such as some structural surveillance counter-measures. They may overlap with physical security measures.
- Public utility outage preparedness, like backup generators for providing power during power outages .

Home improvement industry

[edit]

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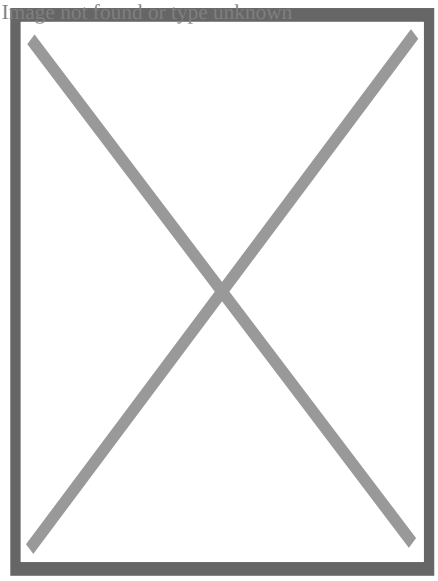

Screws and bolts in an OBI home improvement store in Poland

Further information: Hardware store

Home or residential renovation is an almost $300 billion industry in the United States,[5] and a $48 billion industry in Canada.[6][*full citation needed*] The average cost per project is $3,000 in the United States and $11,000–15,000 in Canada.

Professional home improvement is ancient and goes back to the beginning of recorded civilization. One example is Sergius Orata, who in the 1st century B.C. is said by the writer Vitruvius (in his famous book De architectura) to have invented the hypocaust. The hypocaust is an underfloor heating system that was used throughout the Roman Empire in villas of the wealthy. He is said to have become wealthy himself by buying villas at a low price, adding spas and his newly invented hypocaust, and reselling them at higher prices.[7]

Renovation contractors

[edit]

Perhaps the most important or visible professionals in the renovation industry are renovation contractors or skilled trades. These are the builders that have specialized credentials, licensing and experience to perform renovation services in specific municipalities.

While there is a fairly large "grey market" of unlicensed companies, there are those that have membership in a reputable association and/or are accredited by a professional organization. Homeowners are recommended to perform checks such as verifying license and insurance and checking business references prior to hiring a contractor to work on their house.

Because interior renovation will touch the change of the internal structure of the house, ceiling construction, circuit configuration and partition walls, etc., such work related to the structure of the house, of course, also includes renovation of wallpaper posting, furniture settings, lighting, etc.

Aggregators

[edit]

Aggregators are companies that bundle home improvement service offers and act as intermediary agency between service providers and customers.

In popular culture

[edit]

Home improvement was popularized on television in 1979 with the premiere of *This Old House* starring Bob Vila on PBS. American cable channel HGTV features many do-it-yourself shows, as does sister channel DIY Network.[8] Danny Lipford hosts and produces the nationally syndicated *Today's Homeowner with Danny Lipford*. Tom Kraeutler and Leslie Segrete co-host the nationally syndicated *The Money Pit Home Improvement Radio Show*.

Movies that poked fun at the difficulties involved include: *Mr. Blandings Builds His Dream House* (1948), starring Cary Grant and Myrna Loy; *George Washington Slept Here* (1942), featuring Jack Benny and Ann Sheridan; and *The Money Pit* (1986), with Tom Hanks and Shelley Long. The sitcom *Home Improvement* used the home improvement theme for comedic purposes.

See also

[edit]

- Image not found or type unknown Housing portal

- Home repair
- Housekeeping
- Maintenance, repair and operations

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[edit]

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External links

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Wikibooks has a book on the topic of: ***Kitchen Remodel***

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Rooms and spaces of a house

Shared rooms

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

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

- Image not found or type unknown Category: Rooms

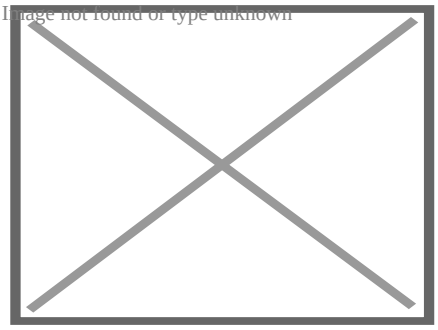
About soil compaction

For soil compaction in agriculture and compaction effects on soil biology, see soil compaction (agriculture), for natural compaction on a geologic scale, see compaction (geology); for consolidation near the surface, see consolidation (soil).

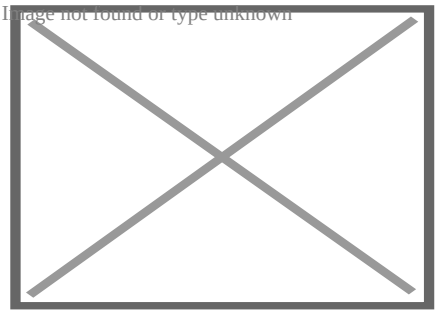
In geotechnical engineering, **soil compaction** is the process in which stress applied to a soil causes densification as air is displaced from the pores between the soil grains. When stress is applied that causes densification due to water (or other liquid) being displaced from between the soil grains, then consolidation, not compaction, has occurred. Normally, compaction is the result of heavy machinery compressing the soil, but it can also occur due to the passage of, for example, animal feet.

In soil science and agronomy, **soil compaction** is usually a combination of both engineering compaction and consolidation, so may occur due to a lack of water in the soil, the applied stress being internal suction due to water evaporation[1] as well as due to passage of animal feet. Affected soils become less able to absorb rainfall, thus increasing runoff and erosion. Plants have difficulty in compacted soil because the mineral grains are pressed together, leaving little space for air and water, which are essential for root growth. Burrowing animals also find it a hostile environment, because the denser soil is more difficult to penetrate. The ability of a soil to recover from this type of compaction depends on climate, mineralogy and fauna. Soils with high shrink–swell capacity, such as vertisols, recover quickly from compaction where moisture conditions are variable (dry spells shrink the soil, causing it to crack). But clays such as kaolinite, which do not crack as they dry, cannot recover from compaction on their own unless they host ground-dwelling animals such as earthworms—the Cecil soil series is an example.

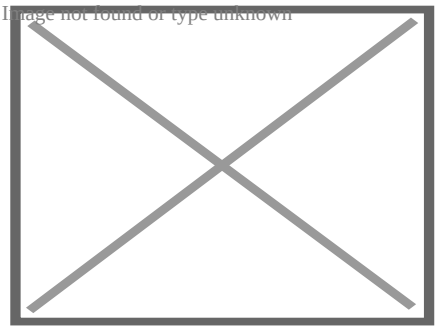
Before soils can be compacted in the field, some laboratory tests are required to determine their engineering properties. Among various properties, the maximum dry density and the optimum moisture content are vital and specify the required density to be compacted in the field.[2]



A 10 tonne excavator is here equipped with a narrow sheepsfoot roller to compact the fill over newly placed sewer pipe, forming a stable support for a new road surface.



A compactor/roller fitted with a sheepsfoot drum, operated by U.S. Navy Seabees



Vibrating roller with plain drum as used for compacting asphalt and granular soils

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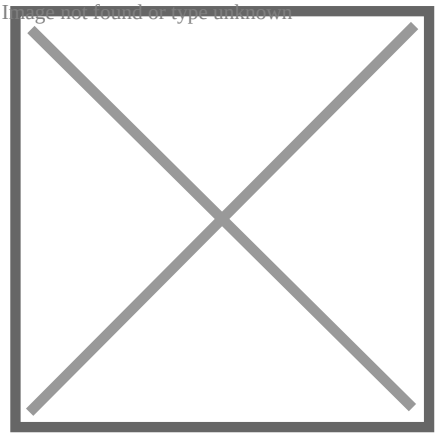


Vibratory rammer in action

In construction

[edit]

Soil compaction is a vital part of the construction process. It is used for support of structural entities such as building foundations, roadways, walkways, and earth retaining structures to name a few. For a given soil type certain properties may deem it more or less desirable to perform adequately for a particular circumstance. In general, the preselected soil should have adequate strength, be relatively incompressible so that future settlement is not significant, be stable against volume change as water content or other factors vary, be durable and safe against deterioration, and possess proper permeability.[3]

When an area is to be filled or backfilled the soil is placed in layers called lifts. The ability of the first fill layers to be properly compacted will depend on the condition of the natural material being covered. If unsuitable material is left in place and backfilled, it may compress over a long period under the weight of the earth fill, causing settlement cracks in the fill or in any structure supported by the fill.[4] In order to determine if the natural soil will support the first fill layers, an area can be proofrolled. Proofrolling consists of utilizing a piece of heavy construction equipment to roll across the fill site and watching for deflections to be revealed. These areas will be indicated by the development of rutting, pumping, or ground weaving.[5]

To ensure adequate soil compaction is achieved, project specifications will indicate the required soil density or degree of compaction that must be achieved. These specifications are generally recommended by a geotechnical engineer in a geotechnical engineering report.

The soil type—that is, grain-size distributions, shape of the soil grains, specific gravity of soil solids, and amount and type of clay minerals, present—has a great influence on the maximum dry unit weight and optimum moisture content.[6] It also has a great influence on how the materials should be compacted in given situations. Compaction is accomplished by use of heavy equipment. In sands and gravels, the equipment usually vibrates, to cause re-orientation of the soil particles into a denser configuration. In silts and clays, a sheepsfoot

roller is frequently used, to create small zones of intense shearing, which drives air out of the soil.

Determination of adequate compaction is done by determining the in-situ density of the soil and comparing it to the maximum density determined by a laboratory test. The most commonly used laboratory test is called the Proctor compaction test and there are two different methods in obtaining the maximum density. They are the **standard Proctor** and **modified Proctor** tests; the modified Proctor is more commonly used. For small dams, the standard Proctor may still be the reference.[5]

While soil under structures and pavements needs to be compacted, it is important after construction to decompact areas to be landscaped so that vegetation can grow.

Compaction methods

[edit]

There are several means of achieving compaction of a material. Some are more appropriate for soil compaction than others, while some techniques are only suitable for particular soils or soils in particular conditions. Some are more suited to compaction of non-soil materials such as asphalt. Generally, those that can apply significant amounts of shear as well as compressive stress, are most effective.

The available techniques can be classified as:

1. Static – a large stress is slowly applied to the soil and then released.
2. Impact – the stress is applied by dropping a large mass onto the surface of the soil.
3. Vibrating – a stress is applied repeatedly and rapidly via a mechanically driven plate or hammer. Often combined with rolling compaction (see below).
4. Gyrating – a static stress is applied and maintained in one direction while the soil is a subjected to a gyratory motion about the axis of static loading. Limited to laboratory applications.
5. Rolling – a heavy cylinder is rolled over the surface of the soil. Commonly used on sports pitches. Roller-compactors are often fitted with vibratory devices to enhance their effectiveness.
6. Kneading – shear is applied by alternating movement in adjacent positions. An example, combined with rolling compaction, is the 'sheepsfoot' roller used in waste compaction at landfills.

The construction plant available to achieve compaction is extremely varied and is described elsewhere.

Test methods in laboratory

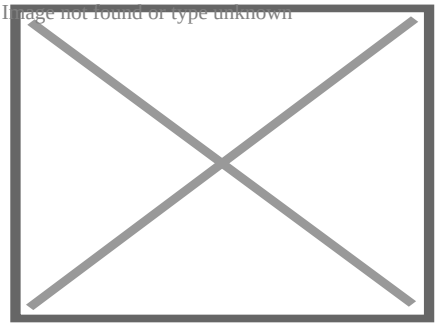
[edit]

Soil compactors are used to perform test methods which cover laboratory compaction methods used to determine the relationship between molding water content and dry unit weight of soils. Soil placed as engineering fill is compacted to a dense state to obtain satisfactory engineering properties such as, shear strength, compressibility, or permeability. In addition, foundation soils are often compacted to improve their engineering properties. Laboratory compaction tests provide the basis for determining the percent compaction and molding water content needed to achieve the required engineering properties, and for controlling construction to assure that the required compaction and water contents are achieved. Test methods such as EN 13286-2, EN 13286-47, ASTM D698, ASTM D1557, AASHTO T99, AASHTO T180, AASHTO T193, BS 1377:4 provide soil compaction testing procedures.[7]

See also

[edit]

- Soil compaction (agriculture)
- Soil degradation
- Compactor
- Earthwork
- Soil structure
- Aeration
- Shear strength (soil)



Multiquip RX1575 Rammax Sheepsfoot Trench Compaction Roller on the jobsite in San Diego, California

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[edit]

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Geotechnical engineering

Offshore geotechnical engineering

Investigation and instrumentation

Field (*in situ*)

- Core drill
- Cone penetration test
- Geo-electrical sounding
- Permeability test
- Load test
  - Static
  - Dynamic
  - Statnamic
- Pore pressure measurement
  - Piezometer
  - Well
- Ram sounding
- Rock control drilling
- Rotary-pressure sounding
- Rotary weight sounding
- Sample series
- Screw plate test
- Deformation monitoring
  - Inclinometer
  - Settlement recordings
- Shear vane test
- Simple sounding
- Standard penetration test
- Total sounding
- Trial pit
- Visible bedrock
- Nuclear densometer test
- Exploration geophysics
- Crosshole sonic logging

Soil	Types	○ Clay ○ Silt ○ Sand ○ Gravel ○ Peat ○ Loam ○ Loess
	Properties	○ Hydraulic conductivity ○ Water content ○ Void ratio ○ Bulk density ○ Thixotropy ○ Reynolds' dilatancy ○ Angle of repose ○ Friction angle ○ Cohesion ○ Porosity ○ Permeability ○ Specific storage ○ Shear strength ○ Sensitivity

Structures (Interaction)	Natural features	○ Topography ○ Vegetation ○ Terrain ○ Topsoil ○ Water table ○ Bedrock ○ Subgrade ○ Subsoil

	Earthworks	○ Shoring structures
		  ○ Retaining walls
		  ○ Gabion
		  ○ Ground freezing
		  ○ Mechanically stabilized earth
		  ○ Pressure grouting
		  ○ Slurry wall
		  ○ Soil nailing
		  ○ Tieback
		○ Land development
		○ Landfill
		○ Excavation
		○ Trench
		○ Embankment
		○ Cut
		○ Causeway
		○ Terracing
		○ Cut-and-cover
		○ Cut and fill
		○ Fill dirt
		○ Grading
		○ Land reclamation
		○ Track bed
		○ Erosion control
		○ Earth structure
		○ Expanded clay aggregate
		○ Crushed stone
		○ Geosynthetics
		  ○ Geotextile
		  ○ Geomembrane
		  ○ Geosynthetic clay liner
		  ○ Cellular confinement
		○ Infiltration

	Foundations	○ Shallow ○ Deep

Mechanics	Forces	○ Effective stress ○ Pore water pressure ○ Lateral earth pressure ○ Overburden pressure ○ Preconsolidation pressure

	Phenomena/ problems	○ Permafrost
		○ Frost heaving
		○ Consolidation
		○ Compaction
		○ Earthquake
		  ○ Response spectrum
		  ○ Seismic hazard
		  ○ Shear wave
		○ Landslide analysis
		  ○ Stability analysis
		  ○ Mitigation
		  ○ Classification
		  ○ Sliding criterion
		  ○ Slab stabilisation
		○ Bearing capacity * Stress distribution in soil

Numerical analysis software	○ SEEP2D ○ STABL ○ SVFlux ○ SVSlope ○ UTEXAS ○ Plaxis	

Related fields

- Geology
- Geochemistry
- Petrology
- Earthquake engineering
- Geomorphology
- Soil science
- Hydrology
- Hydrogeology
- Biogeography
- Earth materials
- Archaeology
- Agricultural science
  - Agrology

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Soil science

- History
- Index

Main fields

- Pedology
- Edaphology
- Soil biology
- Soil microbiology
- Soil zoology
- Soil ecology
- Soil physics
- Soil mechanics
- Soil chemistry
- Environmental soil science
- Agricultural soil science

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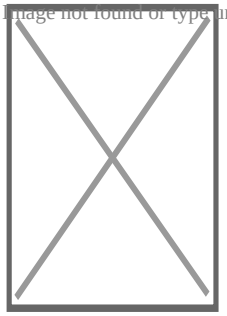

Soil topics

- Soil
- Pedosphere
  - Soil morphology
  - Pedodiversity
  - Soil formation
- Soil erosion
- Soil contamination
- Soil retrogression and degradation
- Soil compaction
  - Soil compaction (agriculture)
- Soil sealing
- Soil salinity
  - Alkali soil
- Soil pH
  - Soil acidification
- Soil health
- Soil life
- Soil biodiversity
- Soil quality
- Soil value
- Soil fertility
- Soil resilience
- Soil color
- Soil texture
- Soil structure
  - Pore space in soil
  - Pore water pressure
- Soil crust
- Soil horizon
- Soil biomantle
- Soil carbon
- Soil gas
  - Soil respiration
- Soil organic matter
- Soil moisture
  - Soil water (retention)

- **v**
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Soil classification

World Reference Base for Soil Resources (1998–)	○ Acrisols ○ Alisols ○ Andosols ○ Anthrosols ○ Arenosols ○ Calcisols ○ Cambisols ○ Chernozem ○ Cryosols ○ Durisols ○ Ferralsols ○ Fluvisols ○ Gleysols ○ Gypsisols ○ Histosol ○ Kastanozems ○ Leptosols ○ Lixisols ○ Luvisols ○ Nitisols ○ Phaeozems ○ Planosols ○ Plinthosols ○ Podzols ○ Regosols ○ Retisols ○ Solonchaks ○ Solonetz ○ Stagnosol ○ Technosols ○ Umbrisols ○ Vertisols
USDA soil	○ Alfisols ○ Andisols ○ Aridisols ○ Entisols ○ Gelisols ○ Histosols

Applications

- Soil conservation
- Soil management
- Soil guideline value
- Soil survey
- Soil test
- Soil governance
- Soil value
- Soil salinity control
- Erosion control
- Agroecology
- Liming (soil)

Related fields

- Geology
- Geochemistry
- Petrology
- Geomorphology
- Geotechnical engineering
- Hydrology
- Hydrogeology
- Biogeography
- Earth materials
- Archaeology
- Agricultural science
  - Agrology

Societies, Initiatives

- Australian Society of Soil Science Incorporated
- Canadian Society of Soil Science
- Central Soil Salinity Research Institute (India)
- German Soil Science Society
- Indian Institute of Soil Science
- International Union of Soil Sciences
- International Year of Soil
- National Society of Consulting Soil Scientists (US)
- OPAL Soil Centre (UK)
- Soil Science Society of Poland
- Soil and Water Conservation Society (US)
- Soil Science Society of America
- World Congress of Soil Science

Scientific journals	○ *Acta Agriculturae Scandinavica B* ○ *Journal of Soil and Water Conservation* ○ *Plant and Soil* ○ *Pochvovedenie* ○ *Soil Research* ○ *Soil Science Society of America Journal*
See also	○ Land use ○ Land conversion ○ Land management ○ Vegetation ○ Infiltration (hydrology) ○ Groundwater ○ Crust (geology) ○ Impervious surface/Surface runoff ○ Petrichor

- Wikipedia:WikiProject Soil
- Category soil
- Category soil science
- List of soil scientists

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About Water damage

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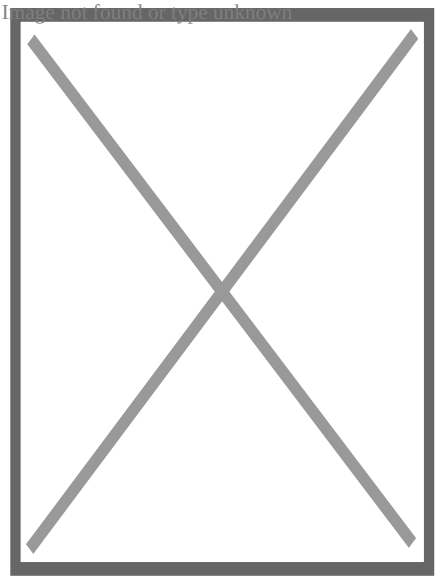

Interior of part of a damaged home in New Orleans after Hurricane Katrina

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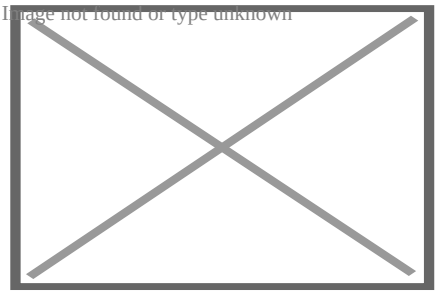

Family photographs damaged by flooding

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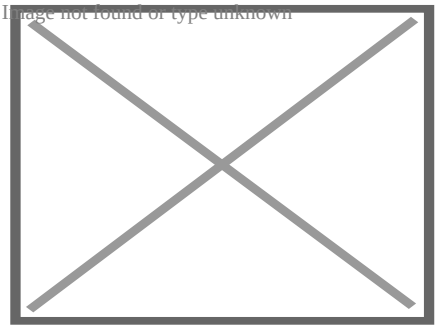

A smaller and more minor water spot caused by rainwater leaking through a roof

Water damage describes various possible losses caused by water intruding where it will enable attack of a material or system by destructive processes such as rotting of wood, mold growth, bacteria growth, rusting of steel, swelling of composite woods, de-laminating of materials such as plywood, short-circuiting of electrical devices, etc.

The damage may be imperceptibly slow and minor such as water spots that could eventually mar a surface, or it may be instantaneous and catastrophic such as burst pipes and flooding. However fast it occurs, water damage is a major contributor to loss of property.

An insurance policy may or may not cover the costs associated with water damage and the process of water damage restoration. While a common cause of residential water damage is

often the failure of a sump pump, many homeowner's insurance policies do not cover the associated costs without an addendum which adds to the monthly premium of the policy. Often the verbiage of this addendum is similar to "Sewer and Drain Coverage".

In the United States, those individuals who are affected by wide-scale flooding may have the ability to apply for government and FEMA grants through the Individual Assistance program.[1] On a larger level, businesses, cities, and communities can apply to the FEMA Public Assistance program for funds to assist after a large flood. For example, the city of Fond du Lac Wisconsin received $1.2 million FEMA grant after flooding in June 2008. The program allows the city to purchase the water damaged properties, demolish the structures, and turn the former land into public green space.[*citation needed*]

Causes

[edit]

Water damage can originate by different sources such as a broken dishwasher hose, a washing machine overflow, a dishwasher leakage, broken/leaking pipes, flood waters, groundwater seepage, building envelope failures (leaking roof, windows, doors, siding, etc.) and clogged toilets. According to the Environmental Protection Agency, 13.7% of all water used in the home today can be attributed to plumbing leaks.[2] On average that is approximately 10,000 gallons of water per year wasted by leaks for each US home. A tiny, 1/8-inch crack in a pipe can release up to 250 gallons of water a day.[3] According to *Claims Magazine* in August 2000, broken water pipes ranked second to hurricanes in terms of both the number of homes damaged and the amount of claims (on average $50,000 per insurance claim[*citation needed*]) costs in the US.[4] Experts suggest that homeowners inspect and replace worn pipe fittings and hose connections to all household appliances that use water at least once a year. This includes washing machines, dishwashers, kitchen sinks, and bathroom lavatories, refrigerator icemakers, water softeners, and humidifiers. A few US companies offer whole-house leak protection systems utilizing flow-based technologies. A number of insurance companies offer policyholders reduced rates for installing a whole-house leak protection system.

As far as insurance coverage is concerned, damage caused by surface water intrusion to the dwelling is considered flood damage and is normally excluded from coverage under traditional homeowners' insurance. Surface water is water that enters the dwelling from the surface of the ground because of inundation or insufficient drainage and causes loss to the dwelling. Coverage for surface water intrusion[5] to the dwelling would usually require a separate flood insurance policy.

Categories

[edit]

There are three basic categories of water damage, based on the level of contamination.

Category 1 Water - Refers to a source of water that does not pose substantial threat to humans and classified as "**clean water**". Examples are broken water supply lines, tub or sink overflows or appliance malfunctions that involves water supply lines.

Category 2 Water - Refers to a source of water that contains a significant degree of chemical, biological or physical contaminants and causes discomfort or sickness when consumed or even exposed to. Known as "**grey water**". This type carries microorganisms and nutrients of micro-organisms. Examples are toilet bowls with urine (no feces), sump pump failures, seepage due to hydrostatic failure and water discharge from dishwashers or washing machines.

Category 3 Water - Known as "**black water**" and is grossly unsanitary. This water contains unsanitary agents, harmful bacteria and fungi, causing severe discomfort or sickness. Type 3 category are contaminated water sources that affect the indoor environment. This category includes water sources from sewage, seawater, rising water from rivers or streams, storm surge, ground surface water or standing water. Category 2 Water or Grey Water that is not promptly removed from the structure and or have remained stagnant may be re classified as Category 3 Water. Toilet back flows that originates from beyond the toilet trap is considered black water contamination regardless of visible content or color.[6]

Classes

[edit]

Class of water damage is determined by the probable rate of evaporation based on the type of materials affected, or wet, in the room or space that was flooded. Determining the class of water damage is an important first step, and will determine the amount and type of equipment utilized to dry-down the structure.[7]

Class 1 - Slow Rate of Evaporation. Affects only a portion of a room. Materials have a low permeance/porosity. Minimum moisture is absorbed by the materials. **IICRC s500 2016 update adds that class 1 be indicated when <5% of the total square footage of a room (ceiling+walls+floor) are affected **

Class 2 - Fast Rate of Evaporation. Water affects the entire room of carpet and cushion. May have wicked up the walls, but not more than 24 inches. **IICRC s500 2016 update adds that class 2 be indicated when 5% to 40% of the total square footage of a room (ceiling+walls+floor) are affected **

Class 3 - Fastest Rate of Evaporation. Water generally comes from overhead, affecting the entire area; walls, ceilings, insulation, carpet, cushion, etc. **IICRC s500 2016 update adds that class 3 be indicated when >40% of the total square footage of a room (ceiling+walls+floor) are affected **

Class 4 - Specialty Drying Situations. Involves materials with a very low permeance/porosity, such as hardwood floors, concrete, crawlspaces, gypcrete, plaster, etc. Drying generally requires very low specific humidity to accomplish drying.

Restoration

[edit]
See also: Convectant drying

Water damage restoration can be performed by property management teams, building maintenance personnel, or by the homeowners themselves; however, contacting a certified professional water damage restoration specialist is often regarded as the safest way to restore water damaged property. Certified professional water damage restoration specialists utilize psychrometrics to monitor the drying process.[8]

Standards and regulation

[edit]

While there are currently no government regulations in the United States dictating procedures, two certifying bodies, the Institute of Inspection Cleaning and Restoration Certification (IICRC) and the RIA, do recommend standards of care. The current IICRC standard is ANSI/IICRC S500-2021.[9] It is the collaborative work of the IICRC, SCRT, IEI, IAQA, and NADCA.

Fire and Water Restoration companies are regulated by the appropriate state's Department of Consumer Affairs - usually the state contractors license board. In California, all Fire and Water Restoration companies must register with the California Contractors State License Board.[10] Presently, the California Contractors State License Board has no specific classification for "water and fire damage restoration."

Procedures

[edit]

Water damage restoration is often prefaced by a loss assessment and evaluation of affected materials. The damaged area is inspected with water sensing equipment such as probes and other infrared tools in order to determine the source of the damage and possible extent of areas affected. Emergency mitigation services are the first order of business. Controlling the source of water, removal of non-salvageable materials, water extraction and pre-cleaning of impacted materials are all part of the mitigation process. Restoration services would then be

rendered to the property in order to dry the structure, stabilize building materials, sanitize any affected or cross-contaminated areas, and deodorize all affected areas and materials. After the labor is completed, water damage equipment including air movers, air scrubbers, dehumidifiers, wood floor drying systems, and sub-floor drying equipment is left in the residence. The goal of the drying process is to stabilize the moisture content of impacted materials below 15%, the generally accepted threshold for microbial amplification. Industry standards state that drying vendors should return at regular time intervals, preferably every twenty-four hours, to monitor the equipment, temperature, humidity, and moisture content of the affected walls and contents.[6] In conclusion, key aspects of water damage restoration include fast action, adequate equipment, moisture measurements, and structural drying. Dehumidification is especially crucial for structural components affected by water damage, such as wooden beams, flooring, and drywall.

See also

[edit]

- Indoor mold

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[edit]

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About Cook County

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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)

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Palmisano (Henry) Park

4.7 (1262)

Driving Directions in Cook County

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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88.1396465!2d42.0637725!3e1

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.

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.

Understanding Sandy Loam and Drainage PropertiesView GBP

Check our other pages :

- Examining Sloping Floors for Underlying Settlement
- Recognizing Cracks and Shifts in Concrete Floors
- Spotting Early Warning Signs of Foundation Stress
- Forecasting Effects of Prolonged Drought on Soil Behavior

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