

Strip Foundations vs Trench Fill Foundations vs Raft Foundations vs Pad Foundations vs Piled Foundations

Foundations are one of those parts of a build that nobody gets excited about until they go wrong, and then suddenly they are the only thing anyone wants to talk about. The right foundation type depends on the building load, ground conditions, nearby trees, groundwater, made ground, slope, access and budget. In simple terms, the ground decides more than the client usually does. Planning Portal notes that all buildings need adequate foundations to transmit the load safely to the ground, and NHBC's 2026 Standards apply to homes whose foundations started on or after 1 January 2026.

Most domestic projects in the UK fall into either **shallow foundations** or **deep foundations**. Shallow solutions commonly include **strip, trench fill, pad and raft foundations**, while **piled foundations** are used where the ground or the building demands a deeper engineered solution. Build It's 2026 guide says most residential builds on decent ground are fine with shallow foundations, but site conditions and bearing capacity are critical to selecting the right approach.

What the products are generally used for?

Strip foundations are one of the most common traditional foundation types for low-rise domestic construction. They are typically used where the ground has adequate bearing capacity close to the surface and the building loads are relatively straightforward, such as standard external and internal load-bearing walls. Planning Portal describes shallow-fill foundations as providing the minimum thickness required to transfer the load to the soil.

Trench fill foundations are also widely used for low-rise domestic buildings and are often selected where deeper excavation is required but the project still suits a mass concrete solution. They are common on house plots, garages and smaller buildings where reducing below-ground blockwork and speeding up the foundation stage is useful. NHBC's climate-change foundation guidance describes trench fill as a common solution for low-rise structures.

Raft foundations are generally used where the ground is weaker or more variable, or where loads need to be spread over a wider area. They can also make sense where strip or trench foundations would become excessive due to poor bearing ground, differential settlement risk or challenging site conditions. NHBC guidance treats raft foundations as a specialist option alongside pile, pier and beam systems where simple strip foundations are not appropriate.

Pad foundations are usually used to support isolated point loads such as columns, posts or structural frames rather than continuous load-bearing walls. They are not usually the default answer for a typical house footprint, but they are very relevant in structures with column loads, steel frames, some porch arrangements and where ground beams may connect separate supports. Jewson's technical guide describes pad foundations as shallow foundations used for single-point loads and sometimes to support ground beams.

Piled foundations are used where near-surface ground is unsuitable for shallow foundations, such as on soft soils, made ground, shrinkable clay near trees, or where settlement risk is too high. They transfer load deeper into stronger strata and are a common engineered solution where ordinary



shallow foundations would become impractical or too risky. NHBC's guidance on piled foundations and its raft, pile, pier and beam chapter both position piling as a specialist response to more demanding ground conditions.

Why each one is used?

Strip foundations are used because they are simple, familiar and often cost-effective on suitable ground. When the trench depth is reasonable and stable bearing strata can be reached without drama, strip foundations remain a sensible choice. They are effectively the standard answer when the site is not trying to cause problems.

Trench fill foundations are used because they can speed things up on site. Instead of pouring a relatively shallow strip and then building up more substructure blockwork, the trench is filled much higher with concrete. That can reduce labour below ground and simplify sequencing. The trade-off is obvious: more concrete, less blockwork.

Raft foundations are used because they spread building loads across a larger footprint. That makes them attractive on weaker or variable ground where concentrated loads could lead to settlement issues with simpler shallow foundations. They can also become commercially sensible when strip or trench foundations would need to go deep enough to get expensive anyway.

Pad foundations are used because they are efficient for isolated loads. If the structure is being carried by columns rather than continuous walls, there is no point pouring continuous foundations where they are not needed. The right structure drives the right foundation. Revolutionary, I know.

Piled foundations are used because sometimes the upper ground simply is not good enough. That may be because of made ground, compressible soils, shrinkable clay, nearby trees, steeply varying strata or high settlement risk. Piling is usually chosen because the site forces a deeper engineering response, not because someone fancied spending more money for entertainment.

Ease of use

Strip foundations are relatively straightforward to understand and build, but they rely on stable trench bottoms, suitable founding levels and proper inspection before concrete is poured. They work well when the ground cooperates. They work less well when it does not.

Trench fill foundations are often easier from a programme point of view because they reduce the amount of substructure walling required below ground. That can make them quicker and simpler to progress once excavations are approved. The downside is greater concrete volume and the need to get levels right, because there is less flexibility afterwards. LABC's technical manual notes that discrepancies are harder to adjust for with trench fill due to the limited brick courses between foundation and DPC.

Raft foundations usually need more design input and coordination than standard strip or trench fill solutions. They are not typically a casual builder's default move. Reinforcement, slab detailing, edges, service penetrations and load paths all need to be right. On the right site they are excellent. On the wrong site they are just a big expensive slab with ambition issues.



Pad foundations are straightforward where the structural layout is straightforward, but they are not a like-for-like replacement for strip foundations. They need the loads to be properly understood and positioned, often in combination with beams or a framed structure. In short, simple in the right job, wrong in the wrong one.

Piled foundations generally involve the most specialist design and installation of the options listed here. They usually need geotechnical information, structural design, a piling contractor and more coordination than shallow foundations. They can solve difficult sites brilliantly, but they are not the easiest route on a simple plot with decent ground.

Technical characteristics that matter

One of the biggest technical drivers across all foundation types is **ground condition**. Build It's 2026 guide says soil bearing capacity, stability, drainage and groundwater conditions all influence the correct solution, and it specifically recommends a geotechnical soil survey early in the process. Warranty providers and lenders may also require this.

Another major factor is **foundation depth**. Build It notes that foundations in rock and stony ground can often be shallower, while in shrinkable soils such as clay, at least **1 metre deep** is normal, with nearby trees and shrubs potentially requiring a good deal more depth. That is exactly why shallow-foundation costs can move from "fine" to "who ordered this invoice?" very quickly.

Made ground is a red flag for standard shallow solutions. LABC Warranty's technical manual says foundations bearing on made ground or fill as the formation for **strip, trench or raft foundations are unacceptable** without appropriate technical justification and assessment. That is a big clue that site investigation is not an optional bit of paperwork.

For **trench fill**, LABC also notes that where the depth of mass-fill foundations exceeds **2.5 metres**, they should be designed by a Chartered Structural Engineer in accordance with current standards and codes of practice. That tells you where a supposedly simple trench fill job starts to drift into engineered territory.

For **piled foundations**, settlement control and deeper load transfer are central technical benefits. LABC's guidance references stricter long-term settlement expectations for piles than for shallow foundations, which reflects the more engineered nature of the system. NHBC's piled-foundation guidance is dedicated specifically to efficient design for low-rise housing, which underlines how important correct design is in piled solutions.

Approximate costs of the product / system

Foundation costs move around heavily depending on excavation depth, ground conditions, muck-away, concrete rates, access, reinforcement and engineering. So these are broad UK planning-guide figures, not a fixed promise from the universe.

Strip foundations are commonly quoted around **£130 to £200 per linear metre** for standard domestic widths and depths, with one 2026 UK guide suggesting a typical three-bedroom house may land around **£10,000 to £18,000** depending on perimeter and ground conditions. Other UK guides



place strip foundations around **£95 to £115 per linear metre** or higher once market and site variations are factored in.

Trench fill foundations are generally more expensive per linear metre than strip foundations because of the greater concrete volume. Checkatrade's cost guide puts trench fill around **£130 to £160 per linear metre**, while another current estimator suggests a broader planning range of roughly **£170 to £280 per linear metre including VAT**, depending on width, depth and spoil removal.

Raft foundations are often quoted on an area basis rather than linear metre. One 2026 UK guide places raft foundations broadly around **£120 to £220 per m²** for residential projects, with many full-service quotes nearer **£180 to £250 per m²** depending on the site and specification. They can become more cost-effective where strip or trench solutions would need to become very deep.

Pad foundations vary too much by size, load and quantity to give a clean universal rate without risking nonsense, but they are generally cost-effective where only isolated supports are needed and the ground is suitable at shallow depth. They are less commonly priced as a simple domestic "whole house" solution because that is usually not what they are doing.

Piled foundations are usually the most specialist and often the most expensive of the common domestic options, particularly once pile caps, ground beams, engineering and specialist contractor mobilisation are included. Costs vary widely by pile type, depth, access and quantity, so the sensible position is that piling is usually chosen because it is necessary, not because it wins a simple headline cost comparison.

How they tend to be sold and availability

Strip and trench fill foundations are not usually "sold" as a branded product in the same way as insulation or floor finishes. They are typically delivered as a groundwork package involving excavation, inspection, concrete pour, substructure and associated spoil removal. Planning your quote basis properly matters, because Build It notes that the total solution includes more than just the concrete footing.

Raft foundations are commonly sold as an engineered solution, either through a structural design and local groundwork team or as part of a specialist package, particularly where insulation-integrated or system-led rafts are involved. They are less of a commodity purchase and more of a designed structural package.

Pad foundations are generally procured as part of the structural frame and groundwork design rather than as a mainstream off-the-shelf domestic foundation choice. They tend to appear where the structure itself calls for them.

Piled foundations are usually procured through specialist piling contractors working to an engineer's design and site investigation data. Availability is broad in the UK market, but this is a specialist trade package rather than something your average Saturday merchant run is going to sort between timber and teabags.



Other points a customer should know before choosing

The biggest early decision-driver is the **site investigation**. Build It's guidance is very clear that you should understand soil type, bearing pressure, drainage and groundwater before locking in the foundation solution. Picking a foundation before you understand the plot is basically reverse-engineering your own headache.

Nearby **trees and clay soils** can dramatically change foundation depth and therefore cost. NHBC's 2026 standards update specifically notes additional guidance on the seasonal behaviour of clay soils and moisture variation, reinforcing how important these conditions remain in foundation design.

Programme matters too. Trench fill can save time over strip foundations by reducing below-ground masonry, while piling can accelerate certain difficult sites compared with endlessly chasing deeper trench solutions. The cheapest-looking solution on paper is not always the best value once time, risk and uncertainty are included. NHBC's climate-change foundation paper also notes that the most cost-effective foundation solution may not be the one with the least environmental impact.

Conclusion

If you want the blunt version: **strip foundations** are the traditional, sensible choice on decent ground; **trench fill foundations** are the faster, more concrete-heavy version of the same broad idea; **raft foundations** are useful where the load needs spreading over weaker or variable ground; **pad foundations** are for isolated point loads rather than whole-house wall support; and **piled foundations** are the engineered answer when the upper ground is not good enough.

There is no universal winner. A simple low-rise build on good ground may suit strip or trench fill perfectly. A more difficult site with variable bearing capacity may point toward a raft. A framed structure may need pads. A site with poor upper strata, made ground or high movement risk may push the job toward piling. The smart move is not choosing the foundation that sounds toughest. It is choosing the one that is appropriate for the plot, the loads, the design and the actual ground conditions.

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