



Concrete DRIVEWAYS

Pros and Cons of a Concrete Driveway

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Concrete is a favored material for [driveways](#), and for good reason. Concrete slabs are very strong and durable, and they require very little maintenance. The combined strength and longevity make concrete a relatively good value for large areas of paving. As a driveway surface, concrete is more expensive than [gravel](#) and asphalt, but it is considerably less expensive than a driveway made with brick, cobblestone, or concrete pavers—and it typically outlasts all of these.

Although plain concrete can be rather dull in appearance, concrete can also be colored and stamped to create a unique and attractive surface.

Concrete as a Building Material

Concrete is sometimes mistakenly known as cement, but in reality, the term *cement* refers to just one component that makes up concrete. Concrete is a composite material made up of various types of stone aggregate that are held together with a mixture of water and lime-based binder—usually Portland cement. The cement itself is a pulverized powder made from limestone and clay. The size of the aggregate in the concrete mixture can vary, depending on the intended use of the concrete. For typical structural construction used, concrete is formed with gravel-sized aggregates, but for finer work and smoother finished surfaces, finer sands can be used as the aggregate. The typical mixture used in driveway slabs, sidewalks, and other paving surfaces usually uses a mixture of aggregate ranging from gravel to sand-sized particles.

When first mixed, concrete is a pourable slurry that can be shaped to whatever form is required. It then gradually hardens as the concrete cures. The hardening process continues for many months—even years—although a few days of curing make it hard enough for most uses.

In many applications, concrete is strengthened by placing steel metal reinforcement wire or rebar within the slab. Other ingredients can also be added during mixing, such as agents that improve strength or slow drying time.

Installation

Although it is possible for a homeowner to pour a concrete driveway themselves, it is quite hard work. Time is a critical element because once the concrete is poured, it begins to harden very quickly. For this reason, it is usually left to professionals who can excavate, prepare forms, pour the concrete, and finish the surface quickly. A professional crew can do the entire project in a couple of days, while a homeowner takes usually a week or more for excavation and preparation alone, and another very long day for pouring and finishing. For the homeowner intrepid enough to pour his own concrete, having a group of willing and able-bodied helpers on hand is essential.

Installing a concrete driveway starts with removing grass and other vegetation and ensuring a stable soil foundation. Wood forms are then installed around the perimeter of the intended driveway. A base of class-5 gravel at least 4 inches thick is added, graded, and compacted. Reinforcement material is added just above the packed gravel base, consisting of a steel wire grid or metal rebar laid in a criss-cross pattern across the area.

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The driveway is now ready for the concrete pour. This generally involves a crew of several people working quickly to fill the forms with wet concrete as it is delivered from a ready-mix vendor and then to quickly finish the surface. The finishing crew should also ensure an adequate number of expansion joints—grooves formed across the wet surface at prescribed intervals to allow the slab to shift and break at controlled places. Without expansion grooves, a slab can fragment randomly under the effect of natural settling and shifting.

A key part of the finishing process is *floating* the concrete. After the concrete is poured and smoothed, the finishing crew uses a variety of tools to work the surface of the concrete, drawing the cement and finer particles to the surface through capillary action to create an attractive, smoother surface. The amount of floating determined how smooth the surface will be, and there is considerable craft involved in doing so because excessive floating will weaken the surface and cause it to flake, while too little will leave the slab with a rough, industrial look. This is also the time when a skilled crew can impart decorative finishes and colors to the surface of the slab.

One of the most important parts of a concrete driveway installation begins after all of the above work is done—the curing. Concrete doesn't dry out; rather, it undergoes a slow chemical process that hardens and strengthens the material. It is very important that this curing process occurs under the best of circumstances. That begins with the weather. Ideal curing weather is about 70 degrees with a surface that is kept damp but not wet. In cool weather, curing will take longer. In hot weather, the surface should be dampened regularly with water to slow down the curing time.

Wait at least a week before driving on the new driveway, and at least a month before parking heavy vehicles on the driveway. Wait a month or two before [sealing the concrete](#).

Maintenance

Many people look at [concrete driveways as being virtually maintenance free](#), but to best ensure long life, it does pay to keep the driveway clean and sealed. A good scrubbing with a hose and stiff brush will usually handle the cleaning, while concrete sealer will add a layer of protection. Sealer should be applied at least once a year. If you live in snow country, the best time to seal a driveway is in the fall to ensure that the slab will stand up to road salts and harsh winter weather.

Longevity and Costs

Concrete driveways generally remain functional for 25 to 50 years, depending on how well built they were and how well they have been maintained. A basic concrete driveway installed over a gravel base by a professional crew will cost \$4 to \$10 per square foot. The national average is about \$6 per square foot, making the cost of a 16 x 38 driveway about \$3900. These costs can nearly double, however, if you decide to go with a colored or stamped finish. Expect to pay slightly more if there is demolition of a previous slab involved.

Pros

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- **Concrete is a relatively affordable option when you consider longevity. You may need to have a driveway done only once during the time you own your home.**
- **Concrete is an exceedingly durable surface. When well installed and well cared for, a concrete slab can last 50 years or more.**
- **Concrete driveways are very strong. Well installed with the proper base and reinforcement, they will stand up to the heaviest vehicles you are likely to drive.**

Cons

- **Concrete is not the most attractive building material, although color-etching and stamping are possible. These decorative treatments, though, require more maintenance and typically don't last as long as plain concrete.**
- **Concrete does require annual maintenance, especially sealing, to ensure the long life of the slab. Oils and fluids leaking from vehicles can cause stains that are difficult to remove.**
- **Concrete is not a very DIY-friendly material for large projects. Pouring a concrete driveway involves very hard labor, so for most people, professional installation is the best option.**

FAQ

- **What's the difference between concrete and cement?**

Concrete is a **mixture** of stone aggregates and water or lime-based binder. **Cement** is made from pulverized limestone and clay powder.

- **Do I need a professional to install a concrete driveway?**

You should hire a **professional** to install a concrete driveway, as it saves money, time, and physical exertion. Concrete pouring requires a sizable crew, best provided by a professional.

- **What are alternatives to concrete driveways?**

Alternatives to concrete driveways include brick, **gravel**, or pavers. Consider aesthetic preferences and consult a professional before deciding on the best material for your driveway.

