

Kuert Concrete, Inc.

Do-It-Yourself Concrete Guide



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Why Choose Concrete?

Here are some of the benefits to choosing concrete for your home:

- Concrete is durable and will last many years if properly maintained.
- Concrete does not need to be sealed every year, therefore it is easy for homeowners to preserve with minimal maintenance.
- Concrete has a lighter color and higher solar reflectance than dark pavements, such as asphalt. These properties reduce heat absorption and minimize the urban heat island effect; while also helping to enhance exterior lighting.
- At the end of its life cycle, concrete can be recycled. Concrete can also be produced with recycled or reclaimed materials. These qualities make it a very environmentally-friendly product.
- Concrete is incredibly versatile and can be produced in a variety of colors and finished in a variety of shapes, patterns and textures.

Whether you're looking for a new driveway, sidewalk, patio, or pool deck; concrete is an excellent option for homeowners looking to improve their home's beauty and increase its value. The following guide can help homeowners tackle their own concrete projects.

Kuert Concrete Recommendations

The recommendations contained in this guide were compiled based upon Kuert Concrete's years of experience in the concrete industry and commonly accepted industry best practices that generally meet or exceed the recommendations of the American Concrete Institute (ACI). If you have any questions or concerns regarding the contents of this guide; it is highly recommended to consult with a concrete professional, which we can happily connect you with.

Things to Consider

Pouring concrete can be quite the undertaking, please consider hiring a concrete contractor if you are uncomfortable with the process set forth in this guide or any of the considerations mentioned below. Please contact Kuert Concrete for a recommendation on a reputable professional in your area. Call our dispatch line at **(574) 239.0053** or email a customer service representative at dispatch@kuert.com for assistance.

- Placing concrete is physically demanding. A wheelbarrow of concrete can easily weigh several hundred pounds. Make sure you have adequate help for the size and scope of your project.
- Concrete is perishable and you will have about 60 minutes to have the truck unloaded. This is another reason you should ensure you have adequate help and all of the tools necessary to complete your project when the truck arrives.
- Concrete is caustic to skin and eyes and will cause burns. Always ensure you have proper personal protection: including rubber boots, rubber gloves, and eye protection. If you do come in contact with concrete, wash immediately with soap and water.

- Ready-mix trucks are big and heavy. A fully loaded ready-mix truck can weigh almost 80,000 pounds. Our drivers will ask you to sign your delivery ticket which provides consent for the truck to enter your property and owner acceptance of liability for any damage to your property and our equipment.

Doing it Yourself

If you are still comfortable trying to manage your own concrete project after taking into account the considerations above, please review the rest of this guide to help prepare for and complete each step.

Outline of the Process

This guide will provide you with an overview of each step listed below:

1. Preparing for Your Pour
2. Preparing Your Subgrade
3. Ordering Your Concrete
4. Placing Your Concrete
5. Finishing Your Concrete
6. Curing and Sealing Your Concrete

Step 1: Preparing for Your Pour

Preparation is imperative to the success of your DIY concrete project. You will need to lay out precisely what you want to do and make sure you have all of the proper tools and supplies to complete the project. Once the concrete is batched into the truck, you take ownership of the product and it becomes your responsibility to place and finish the concrete.

As soon as water is mixed with the cement it initiates a chemical reaction which causes the concrete to “set” or become hardened. You will have about 2 hours from the time the concrete is batched before it has completely set. This is why it is so important to have everything prepared before the concrete arrives. This includes securing any necessary permits and contacting your local utility companies to have buried cables marked. You must also determine how the truck will access your project. You will need to ensure the truck will have overhead clearance from trees and power lines and be aware that the weight of the truck can damage your yard, sprinkler system, driveway, sidewalk and septic tank. Please use caution when directing the truck off the street and onto your property. Please visit [Our Trucks](#) page for the dimensions and weight of our trucks.

You will likely need the following tools to complete your project (depending on your project, this may not be an exhaustive list):

- Rubber gloves, boots and safety goggles
- Concrete forms
- Nail stakes and nails (double-headed is recommended)

- Shovel
- Hammer and sledge hammer
- Saw
- Tape measure
- Level
- Square
- String-line
- Large wheelbarrow (if direct access for truck is not available)
- Sub-grade compactor (tamper, heavy roller, or vibrating compactor)
- Screed board that extends beyond the width of the forms
- Hand float
- Concrete placer (come-along)
- Bull float with a handle long enough to reach across the concrete
- Concrete broom (if broom finishing) with a handle long enough to reach across the concrete
- Edger
- Jointer, groover, or concrete saw
- Trowel (for finishing non-air-entrained interior floors)
- Curing and sealing materials and equipment (refer to manufacturer's recommendations for application)

Kuert Concrete also operates a construction supply division that can provide you with almost all of the tools and supplies listed above. Many of these tools and supplies can be delivered with your ready-mix concrete order. Please contact Kuert Supply Center at (574) 239.0058 for questions, pricing, or to place a supply order.

Step 2: Preparing Your Subgrade

The ground that will be beneath the poured concrete is referred to as the subgrade. You must remove all grass, plants, roots, rocks and loose or soft dirt from your project site. Replace this with a proper subgrade material like fill sand or crushed aggregate. Make sure that the compacted subgrade is at a uniform depth (generally four inches, but follow your county or city requirements) below your anticipated finished grade. When the concrete truck arrives, slightly dampen the subgrade so moisture is not drawn out of the concrete when it is placed on the subgrade.

Compacting the Subgrade

It is very important that this step is completed properly. Improper subgrade compaction can cause unwanted settling and cracks in your finished concrete project. Moreover, heavy wet concrete will compact the loose subgrade and cause a miscalculation of concrete quantity. The subgrade should be uniform, hard, free of any foreign material, and well-drained. If you have a large project, like a driveway, consider using a vibrating compactor to complete this step. A heavy roller or hand tamper can often be used to compact subgrade for smaller projects.

Setting the Concrete Forms

After you have prepared the subgrade, you will need to set your concrete forms. Your grade should be on a slope so that water is able to drain from the concrete surface. It is recommended to have a slope of 1/8th inch per linear foot. Use your level and string line to set the grade for the concrete forms. Set the string line to outline your concrete project, make sure it is at desired depth and the slope is in the direction you want the water to drain.

Once your string-line is set you can cut your form boards to size and lay them outside the string line. It is most common to use straight 2x4 wood lumber for your forms. Start at one end of the string line and stand your form up next to your string line, square up the steel nail stakes with your forms, and drive the stake into the ground behind the forms. Your stakes should be roughly four feet apart and flush or just below the top of your concrete forms. Also, make sure to brace behind each spot where the concrete forms butt. Once the stakes are set, you can start to nail the stakes to the forms. Raise the 2x4 so that the top is level with the string line and nail through the stake hole into the 2x4. If you are placing fresh concrete against existing hardened concrete you will need to create an isolation joint. Install expansion joint material in-between the adjoining concrete, making sure the expansion joint material runs the entire depth of the concrete.

Step 3: Ordering Your Concrete

Now that you've planned and prepared, it's time to call us at Kuert Concrete to place your order.

Here's the information we will need:

1. Customer information; this includes name and phone number if we need to contact you regarding your order.
2. Delivery address and any special on-site directions. A valid address or thorough driving instructions are very important due to the perishable nature of concrete.
3. The date and time you would like to have your concrete order delivered. We will do our best to accommodate your request. Please call at least 3 days in advance to give us the best chance to meet your request. We do not accept orders from COD customers before 9:00 am.
4. Project information; this includes the nature of your project (driveway, patio, etc.) and the concrete mix and the slump you prefer (we can assist with any questions you may have).
5. The number of yards you will require. You can utilize our [Concrete Calculator](#) to determine your quantity or you can calculate it yourself. Concrete is measured in cubic yards. A cubic yard is equal to 27 cubic feet. To calculate the number of cubic feet, measure your dimensions in feet and multiply the length times the width, times the depth. Divide your cubic feet total by 27 to determine the number of cubic yards. Add 10% for spills and subgrade settling and round up to the nearest ¼ yard. Concrete can only be ordered in ¼ yard increments, with 1 yard being the minimum order quantity. Quantities less than 4.25 yards are subject to an additional small delivery charge.

6. The method you will use to unload the concrete truck:
 - Pour directly off of the truck (front chutes can reach approximately 15' from the front tires)
 - Contractor-grade wheelbarrow
 - Motorized concrete buggy
 - Bobcat or skid loader
 - Concrete pump, conveyor, or other specialized placement equipment
7. Let us know how you would like to pay for your order. Kuert Concrete only accepts cash and credit cards (Visa, MasterCard, and Discover). We do not accept checks or American Express.
 - Please note that we collect payment before the delivery driver unloads the concrete.
 - If paying by cash, please have exact change as our delivery drivers do not carry change.
 - If paying by credit card, please make arrangements when placing the order.
 - You may be subject to additional charges if you are not able to unload your concrete truck in a timely manner.

Step 4: Placing Your Concrete

It is your responsibility to ensure all site preparation and subgrade work is complete prior to your order arriving. Kuert Concrete will supply ready-mix concrete, but will not assist with site preparation and concrete finishing nor furnish any tools required to complete your project. We are committed to delivering you a quality product, but it is your responsibility to make sure it is placed and finished.

Please remember that placing and finishing concrete is physically demanding. Make sure that you have enough people available to help complete your project. Having at least one person with experience placing and finishing concrete is highly recommended.

Safety First

Please take safety precautions. Always know where the truck is and be sure your delivery driver knows where you are. Contact with wet concrete can cause severe irritation; always wear rubber gloves and boots, as well as safety glasses. Prior to unloading the concrete, please read the disclaimer on your concrete ticket regarding the safety considerations of working with wet concrete.

When the Truck Arrives

Hopefully before you placed your concrete order, you took into consideration how the concrete truck would access the site of your concrete project. Please make sure the concrete truck has enough clearance to navigate the truck to the location you request. It is also helpful to guide your delivery driver as they are moving the truck into place. Please also remember that a fully loaded concrete truck can weigh close to 40 tons. Please refer to [Our Trucks](#) page for weight and dimensions. It is not recommended to have the truck drive over existing driveways, sidewalks, patios, sprinkler systems and septic tanks. Your delivery driver will not drive onto your property until you have signed the consent and release on your delivery ticket.

Adjusting Your Slump

Slump is a measure of the consistency and flowability of the concrete. Slump is measured in inches from 0"-12"; the wetter the concrete or higher the slump, the more workable the concrete is. We recommend a slump measurement of 4"-5" for typical hand finished projects.

Your delivery driver will discharge a small amount of concrete so that you can visually test the slump. If you feel it needs to be able to flow more (increased slump), ask the driver to add a small amount of

water and remix until you are satisfied with the consistency. A good rule of thumb for adding water is:

- **For every cubic yard, 1 gallon of water will increase slump by 1"**

For example, you ordered 6 yards of concrete and it arrived at a 4" slump – you want to pour it at a 5" slump, so you should add 6 gallons of water. The less water used, the better quality of the concrete provided the mix can be consolidated properly. You can always add water, but you can't remove it! Water-cement ratio is more important than slump. You can use water reducers and cementitious materials to increase slump and maintain a water-to-cementitious content of 0.5 or less in all cases. For outside concrete slabs, we recommend a *maximum* water-to-cementitious content of 0.45.

Pouring the Concrete

Be prepared and ready to begin as soon as the concrete truck arrives. Begin with the area of the slab that is furthest away. Your concrete should fill the depths of the form completely and uniformly. Consolidate the edges of the concrete by lightly tamping the concrete along the edge of the forms with a hand float. Try to keep the entire surface of the placed concrete as close to the height of your concrete forms as possible. It is important to try to not leave any leftover concrete in the chutes, so please keep this in mind as you approach the end of your pour. Once you have filled your forms, screed (strike-off) twice to level the surface.

- To strike-off, or screed, take a straight piece of a 2x4 or a magnesium screed board that is longer than the width of your forms. Have one person at each end and start at the beginning of the pour. Make sure you hold the board firmly against the forms to keep the board from rising over high spots. Tilt the board in the direction you are moving and move it back and forth with a sawing motion while dragging it across the slab. Remove concrete that accumulates from high areas and add concrete into any low areas and replace board behind the low spot and re-screed.

Immediately use a bull float to take out small high and low spots. One or two passes should be enough to smooth and level the surface. At this point, stop everything on that portion of the slab until bleed water (water sheen) disappears from the surface.

Cleaning Up

Please provide the delivery driver with a location to rinse the truck down once you have completed the pour. Kuert Concrete utilizes a contained wash-out system to reduce water and concrete left on the jobsite and minimize the impact to the environment. The delivery driver will rinse down the chutes and hopper into a containment system that will pump the water, sand and fine aggregates, and concrete slurry back into the mixer drum. There will be only clean coarse aggregate left in the containment bucket, the driver will need to have a spot to dump this small pile of aggregate.

Step 5: Finishing Your Concrete

Immediately after the bleed water has dissipated from the surface of the concrete is the ideal time to resume the finishing process. The bleeding process occurs when water rises to the top of the concrete matrix to evaporate. It is essential that you wait until this process is complete before finishing the surface. There are several surface defects that can occur if bleed water is trapped under the surface. Please refer to our [Surface Defects](#) page for more information.

Jointing

There are 2 universal guarantees in the concrete industry; your concrete will get hard and it will crack. Cracks are inevitable and are caused by drying and thermal shrinking. However, you can control where the cracks occur with proper contraction joints (also called control joints).

- Hand tool, saw cut, or use control joint inserts to create control joints
- Joints should be at a depth of $\frac{1}{4}$ the depth of the concrete slab
- Joints must be straight and continuous, not staggered or offset. Create equal sized square panels with your control joints.
- To saw control joints, wait until all other finishing and curing applications are complete and the concrete has hardened sufficiently to permit sawing without raveling.
- Space control joints so that the dimension in either direction does not exceed spacing as indicated below:

Slab Thickness	Maximum Distance Between Joints
3.5 inches	8 feet
4 inches	10 feet
5+ inches	12 feet

- For exterior concrete slabs subject to light pneumatic tire traffic, control joints should be caulked with a polyurethane elastomeric sealant. Sealants are available in a variety of colors.

Broom Texture and Smooth Finishes

We recommend a broom finish for concrete applications such as driveways and sidewalks to provide a nonslip surface. Take a lightly dampened concrete broom and gently and slowly pull it across the surface of the concrete slab. Slightly overlap each pass and make sure that the concrete is sufficiently hard to retain the scoring impressions.

If you desire a smooth finish (garage floors, covered patios) use a wood hand float to finish. Avoid machine floating and/or troweling. Exterior concrete should not be troweled because it can lead to a loss of entrained air and create a surface that becomes slippery when wet.

Step 6: Curing & Sealing Your Concrete

Curing

Curing is one of the most important steps in quality concrete construction and one of the most neglected. Effective curing is essential for surface durability. Without proper curing, the strength of the concrete surface can be reduced by 50%. Fresh concrete must be kept warm and moist until the mixing water combines chemically with the cement (hydration). Apply a curing compound or utilize another curing method as soon as possible after finishing without eroding the surface. Concrete can be cured in a number of ways, but Kuert Concrete recommends applying a liquid, solvent-based cure and seal product to the surface of the slab as soon as possible after finishing (for exterior applications). Apply the cure and seal according to the manufacturer's recommendations.

Pouring concrete in cold weather requires ensuring that the subgrade is not frozen and that the fresh concrete does not freeze for at least a week after being placed. To assist in curing and protection from freezing, cover slabs with insulated blankets or use straw covered with a plastic sheet.

Newly placed outdoor concrete not only needs time to cure, but it also needs time to dry in warm air. Concrete placed early enough in the season so that it has one month of temperature above 40 degrees (F) for curing and another month for drying out before hard freezes are expected (and before deicers are applied) has a significant advantage over concrete that has not dried out when cold weather begins.

Sealing

Apply a concrete sealer after the concrete has cured and will allow the sealer to penetrate the concrete (about 30 days of air drying after the concrete is placed and finished). Water repellant coatings and sealers keep water from getting into the surface pores and help prevent damage from freeze/thaw cycles and deicing salts and chemicals. Kuert Concrete recommends applying **TK Tri-Siloxane 290 Final Seal** 30 days after the concrete has been placed and finished. TK Final Seal is designed to penetrate through the solvent-based cure and seal membrane that was applied at the time of finishing. Final Seal is a unique product, as most other penetrating sealers require the cure and seal membrane to be stripped prior to application. Most sealer applications are effective for approximately two years.

- *Please note that the curing and sealing recommendations provided above do not apply to decorative concrete. Decorative concrete projects often require a high degree of skill and experience. Kuert Concrete strongly urges only experienced decorative concrete professionals complete decorative concrete projects.*

Here are some other important tips for homeowners

- Do not use salt or deicers of any kind during the first two winters. Sand can be used to provide traction.
- Do not allow snow or ice to accumulate on the driveway during the first two winters.
- Certain lawn fertilizers chemically attack concrete. Take special care to keep them from contact with your concrete. Sweep pelletized fertilizers from concrete slabs before they dissolve. Never substitute fertilizer for a deicer!