NeoMix® concrete countertop mix

The Original Design-it-Yourself Concrete Mix Kit from Cheng Design

Pro-Formula Instructions

Read thoroughly before starting your project!

Before You Begin...

This product is specially formulated to be used in its entirety as directed. Using Pro-Formula in a different proportion to the directions may result in a poor quality product.

DO NOT follow water requirements on the packaging of the sacked concrete. Pro-Formula will reduce the amount of water in the mix.

Pro-Formula is an all-in-one formulation developed by Fu-Tung Cheng that takes the guess work out of measuring and mixing multiple key ingredients to make concrete countertops. These instructions explain how to mix Pro-Formula with sacked concrete and water and how to fill your mold with the mixture. The instructions are not intended to teach you how to build a concrete countertop. We strongly recommend that first-time countertop builders read Cheng's book, Concrete Countertops, or review our NeoMix Instructional video for details on such topics as: mold making and reinforcement, positioning forms for sink and faucet knockouts, placing decorative inlays, releasing the countertop from the mold and grinding and finishing the countertop.

Ideal Conditions

TEMP: Between 50 and 90 Degrees F
HUMIDITY: Greater than 25%

Buying Your Materials

Pro-Formula is packaged for 1- and 3-cu.ft. yields. One 60 lb. bag of 5000 PSI (pounds per square inch) of Quikcrete, Pakmix, or other sacked concrete yields ½- cu.ft.* Accordingly, a 1-cu.ft. Pro-Formula mix uses two 60 lb. bags of concrete. A 3-cu.ft. Pro-Formula mix uses six 60 lb. bags of concrete.

To determine the amount of material you will need, calculate the volume of your mold in cubic feet. Multiply the Length x Width x Depth of your mold in inches, then divide the total by 1728 (the volume of one cu.ft.) to calculate the cubic footage of your mold. *Do not subtract any sink and faucet knock out volumes.*

****If high strength concrete isn't available, use regular concrete mix and add 2 lbs of portland cement per 1-cu.ft. of mix.***

Example: Your countertop is 8' L (96") x 2' W (24") poured at 2-½ "D is:

24"x 96"x 2-½"= 5760 / 1728 = 3-1/3 cu.ft.*(round to 4 cu.ft.)

Therefore, you will need to buy;

(1) 1-cu.ft. NeoMix Pro-Formula

(1) 3-cu.ft. NeoMix Pro-Formula

(8) bags of 5000 PSI concrete

*****We recommend adding at least 1/2 cubic foot of Pro-Formula mixture to your calculation in order to compensate for any residue left in the mixer, wheelbarrow and on your tools.*

Calculate Your Project:

Length_____ X Width_____ X Depth_____ = _____Cubic Inches

_____Cubic Inches / 1728 = _____ Cubic Feet of Pro-Formula

_____Cubic Feet X 2 = _____Bags of 5000 PSI Concrete

Mixing the Materials

Mixers with a nominal capacity of 4-6 cubic feet only handle 1-1/2 to 2-1/2 cubic feet of mixture. Likewise, mixers with a nominal capacity of 9-12 cubic feet only handle 4-6 cubic feet of mixture. We therefore recommend using a larger mixer to allow for *actual* rather than nominal capacity.

It is a good idea to have three people assisting the pour. Two people can work the concrete into the mold while the third cleans the mixer and tools. Pro-Formula begins to set quickly, so it is important to have a plan for cleaning up before you begin pouring.

1) Before starting, make sure the inside of your mold is clean and that your vibrator, screed board and other tools are readily accessible.

2) Read "The Ideal Mix" (see column at right) for instructions on water proportions and mixing water with the dry materials. Measure out the proper amount of water as indicated.

3) While wearing your dust mask, place the bagged concrete and Pro-Formula into the mixer. Cover the mixer with plastic and a bungee cord or rope to prevent the dry materials from becoming airborne. Run the mixer for about a minute to mix the dry materials.

(Continued on reverse side)

MIXING AND POURING

Tools + Materials Checklist:

- ☐ NeoMix Pro-Formula
- ☐ 5000 PSI concrete mix
- ☐ water source
- ☐ concrete mixer
- ☐ shovel
- ☐ screed (a scrap of melamine)
- ☐ wheelbarrow (or 5 gal. buckets)
- ☐ heavy duty rubber gloves
- ☐ measuring cups
- ☐ 3' x 3' plastic tarp
- ☐ 2 Bungee cords or 10' of rope
- ☐ watch or timer
- ☐ concrete vibrator (smallest available)
- ☐ eye protection
- ☐ wire clippers
- ☐ dust mask

***Image 1**. The Ideal Mix: Low water, high workability*

THE IDEAL MIX

When mixing concrete, it is important to note that the least amount of water used relative to the cement produces the least shrinkage and yields the strongest, most durable concrete. At the same time, the mix needs to be fluid enough to get into the mold. For each cubic foot of concrete, we recommend that you start with 1 gallon of water and increase the water amount in small quantities. The range is anywhere between 1 to 1-1/3 gallons for each cu.ft.(or two 60 lb. bags) of concrete. Slowly add the water in small amounts until the mix has the consistency of runny oatmeal. A mix that is too dry is hard to pour and vibrate; a mix that is too wet is likely to shrink excessively and crack. The consistency we are looking for is a 5-6" slump.

Mixing the Materials *(continued)*

4) Stop the mixer and remove the plastic cover. Check the dry materials to make sure there are no clumps of unmixed materials. If the fibers or other materials are clumped, break them up with your gloved hands.

5) Start the mixer again and slowly add ***1 gallon of water per cu.ft.*** of mixture. Distribute the water evenly over the dry materials. Let the mixer run five minutes. The mixture will be dry and clumpy at first, but that is NOT an indication to quickly add more water. Too much water at this stage of the process will make the mixture difficult to work and could compromise the strength or your countertop.

6) Slowly add the balance of water in 1 cup increments until you've added a total of 1-1/8 gallon per cu.ft. The mixture should reach the consistency of runny oatmeal.*** If the mixture hasn't reached this consistency, you can add more water but do so slowly and in 1/4 cup increments per each cu.ft. of mixture. When the mixture has reached the desired consistency, turn off the mixer.

7) Let the mixture "rest" for two minutes to absorb any remaining water. It will stiffen a bit while resting. After two minutes, turn the mixer back on for another two minutes.

8) Turn the mixer off and pour the mixture into a wheelbarrow. One person should securely hold the wheelbarrow while the other slowly tilts the mixer to pour the mixture.

We estimate a total mix time of between 10-15 minutes for a 4 cu.ft. Pro-Formula mixture.

***** *Water requirements vary depending on humidity and temperature as well as the quality of sacked concrete. Note that ProFormula blues, greens and violet colors may require less water than other colors.*

Filling the Mold

1) Carefully shovel the Pro-Formula mixture into the mold until it is about half full. This will allow you to vibrate the mixture in layers.

2) Read "The Art of Vibrating" in the column at right. Vibrate the first layer of the mixture until the mixture flows evenly across the entire bottom of the mold. Vibrating the first layer of mixture should take from 3-5 minutes (see Image 2).

3) Add the remaining Pro-Formula mixture until the mold is full. If necessary, screed the surface using a clean, straight piece of wood. Work the screed diagonally across the surface with a sawing-like motion (see Image 3).

4) Vibrate the outside of the mold until only a few air bubbles rise to the surface. This should take about 5 minutes.

5) If you have used any reinforcement material, clip the wire inside the mixture so that the wire will not be exposed on the bottom surface.

6) If conditions are dry, cover the mold with a damp blanket or similar material to keep it warm and humid for four days. The ambient temperature should be between 50-90°F. ***Do not cure your countertop in sunlight.***

7) After curing your countertop for 4 days, you'll begin to notice it pulling away from the mold. This is an indication that the countertop is ready to be released.

For more detailed instruction on vibrating, refer to pages 119-121 in the Concrete Countertops book.

Releasing the Countertop from the Mold

For more detailed instruction on releasing the countertop from the mold, refer to pages 136-157 in the Concrete Countertops book.

1) Release the countertop from the mold 4 full days following the pour.

2) Remove all positioning screws that are used to fasten the mold together as well as any screws used to secure it to the table (or other support structure).

3) Remove the walls of the mold by gently prying them away from the countertop. Slow, constant pressure is the best way to break the silicone seal. If using a prying tool, DO NOT pry between the walls and concrete as this may chip the countertop!

4) To remove the bottom of the mold, you'll need two people to turn the entire structure over so the top surface is facing down. Carefully slide the countertop to the edge of the table so that 1/3 of it hangs over the edge. Place 1" strips of rigid foam across the surface of the table for cushioning. Tilt the countertop up on one side and carefully turn it over (see Image 4) and rest it on the foam strips. Securely hold the countertop itself, rather than the mold, as you turn because the mold may release in mid-air. Make sure that you do not *flex* the countertop because doing so may cause slight cracks. Remove the bottom of the mold by pulling up on one corner using steady pressure.

5) Cure your countertop for 2 days in a warm, humid environment; it is not necessary to hydrate it. Do not cure the countertop in sunlight. The countertop will get harder each day. Before grinding, make sure the countertop has sufficiently hardened.

For more detailed instruction on finishing your countertop, refer to pages 136-157 in the Concrete Countertops book.

Image 2*. Vibrate the mix in layers*

Image 3*. Work the screed in a sawing motion*

THE ART OF VIBRATING

Vibration enhances liquefaction and allows for an even-flow as well as reducing the number of air bubbles that appear on the finished surface. When vibrating your countertop, It is a good idea to vibrate in layers. Vibrate the first layer of Pro-Formula mixture by immersing the head of the vibrator horizontally into the mixture and vibrating until the mixture flows evenly across the entire bottom of the mold. Carefully vibrate around the rebar or other reinforcement material and then vibrate the mixture from underneath the table or structure holding the mold. In the difficult places to reach you'll have to work the mixture by hand (wearing rubber gloves) but be careful not to upset any decorative aggregates or other inlays. Fill the mold up to the top now and vibrate the outside (sides and ends) of the mold until only a few air bubbles are still rising to the surface.

RELEASING FROM THE MOLD

TOOLS & MATERIALS CHECKLIST:

- ☐ hammer
- ☐ drill w/ phillips head bit
- ☐ 1" rigid foam
- ☐ pry bar
- ☐ flat razor
- ☐ a few clean wooden shims

Image 4. *Carefully turn the counter over*