

HOW TO MAKE A HYPERTUFA GARDEN TROUGH

Workshop Outline

Hypertufa is a cement-based product, classified as a lightweight-aggregate concrete. Hypertufa weighs only a fraction of standard concrete, and though not as durable as concrete. It can last a decade or more.

YOU WILL NEED:

Supplies for making hypertufa mixture:

Portland cement, Type 1 (get the 47 lb. size regardless...94 lb. is simply too heavy)
Perlite
Peat moss, sieved of large debris
Liquid acrylic bonding agent
Synthetic reinforcing fibers (optional)
Water supply, hose with shut off nozzle
Spray bottle
Mixing container (mortar pan, wheelbarrow, very large plastic tub)
Measuring containers (quart-size plastic container or 2# coffee can work well)
Hoe/shovel/trowel
Scoop (optional)
2 buckets – one for mixing acrylic bonding agent and water, one for rinsing tools

Safety:

STURDY RUBBER GLOVES – absolute necessity, as cement's alkalinity can burn the skin
Dust mask
Protective goggles
*Dress for the mess (shoes included)

Equipment for making/shaping troughs:

Foam insulation board (for larger rectangular trough forms)
Knife, nails, duct tape - for construction of larger forms using insulation board
Forms for drainage holes
Hardware cloth (optional)
Oval or round baking pans, bowls – and plastic to cover the surface
Plastic bins, other household containers - and plastic to cover the surface

General supplies:

Sturdy wooden board, slightly larger than planned trough, for moving it before it dries
-required if hypertufa is on outside of the form
Plastic sheeting/dropcloth for work area,
Large garbage bags - to enclose form once completed
Duct tape
Scissors
Sieve, large tub to hold sieved peat (1/2" hardware cloth sieve)
Tables to work on

Making Hypertufa Mix:

Measure by VOLUME – the size of the measuring unit isn't crucial, but the SAME unit must be used for the 3 main ingredients – cement, peat and perlite. You will need to measure 1 part of cement for every 3 parts of aggregate (peat and perlite together form the aggregate, so in combination they should form $\frac{3}{4}$ of the final volume of mix).

Hypertufa Mix ratio:

Small batch

1 part cement
1.5 parts perlite
1.5 parts peat

OR

Larger batch

3 parts cement
5 parts perlite
4 parts peat

Begin with dry ingredients:

Put on gloves, mask and safety goggles.

Measure dry ingredients and combine in mixing vessel, then mix thoroughly until uniform in color and texture. Hold back a small portion of mix in case you accidentally add too much water – you can add that as needed to bring the mixture back into balance.

Wet ingredients:

Water supply should be readily accessible, with best option a garden hose with variable spray nozzle. Enough water must be added so that all cement particles come in contact with the water. At this point, add liquid acrylic bonding agent, if using, to replace some of the water in a proportion of 1:3 (acrylic : water). The overall volume can be difficult to gauge, since the amount of water needed depends on a variety of factors and final amount is based on feel/consistency of the mixture.

Adding the wet ingredients:

Make an indentation in the center of the dry mix and add some water, then turn the dry ingredients into the wet center with shovel/trowel or other tool until water is uniformly distributed. At this point add synthetic fibers if using, and mix again to evenly distribute them.

Take a handful of the hypertufa mix and squeeze it. The clump of mix should be moist enough to hold together but with no excess water showing on the surface. If water runs out between your fingers as you squeeze, the mix is too wet. The proper degree of wetness should have just a little free water showing through the fingers of the fist clenched around the ball of mix (this water will be further absorbed by the porous peat and perlite aggregates).

Once you have the correct balance of moisture, stop mixing.

Making the Trough:

Once hypertufa has been mixed, it must be used immediately.

If the mix is being applied to the inside of a form:

Pack the mix into the floor or corner of the mold as tightly as you can, using your fist or the heel of your hand. The strength of the finished product depends in part on the degree of compaction.

Test compaction by pushing your thumb into the floor of the mold. If it leaves a deep indentation, you have more compacting to do. Set up drainage hole forms. After completing the floor, begin to build the walls. Press downward as well as outward. Never make the floor or walls thinner than one inch, unless you're making a very small one (12" or less).

If mix is being applied onto the outside of a form (such as a mixing bowl, turned upside down, with drainage hole): *In this case, make sure you already have your plastic and plywood board in place underneath your form.

Begin packing mix at bottom and work your way up, keeping the thickness of the walls consistent. Set up drainage hole/s. Check that thickness is even at 'top' of form. Spray finished molded hypertufa trough with a light mist of water, then bring prepared plastic sheet up and around the trough, enclosing it completely. Tape it securely to make it a watertight 'package', as you want to retain the moisture inside in order for it to cure properly. Move to a cool shady spot if needed for the curing phase.

Curing:

Optimum curing temperature is 68 degrees, but not essential. The initial curing occurs in 2 stages. Initial 'set' begins almost immediately, within the hour of mixing the dry mix with water, which is why it is necessary to form the trough quickly. The final set can take up to 7 days.

Within 24-48 hours the trough should be firm enough to hold its shape if handled carefully. This is the stage during which you can change the texture of the surface by distressing and scoring it to resemble natural stone if desired.

Final curing: after the trough is distressed (if desired) wet the trough once more, rewrap and tape it completely and store it out of the sun for 28 days – the final curing phase. This is the period where the trough will reach its optimal strength. At the end of the month's time, unwrap and remove any braces or forms, and allow it to dry a day or two. If any synthetic fibers are visible, burn them off. Allow trough to sit out for a few weeks or months so that any residual lime leaches out through rain. Or, you can rinse the trough with a solution of 90% water mixed with 10% vinegar to lessen the alkalinity.

See finished examples on page 4.

***Almost all information is from "Creating and Planting Garden Troughs", by Fingerhut and Murfitt, 1999, B. B. Mackey Books

7/10/2021. Deborah Moran



HYPERTUFA MIX PACKED INSIDE A FLUTED FORM WITH A ROUND FORM INSERTED INTO THE MIX



TROUGH ON LEFT WAS MADE BY PRESSING THE MIX ON THE INSIDE SURFACE OF A BOWL FORM RESULTING IN A SMOOTH OUTER SURFACE.

TROUGH ON RIGHT MADE BY PRESSING THE MIX AGAINST THE OUTSIDE OF A BOWL FORM PRODUCING A MORE RUSTIC FINISHED SURFACE



THIS TROUGH WAS MADE BY PRESSING THE MIX AGAINST THE OUTSIDE OF THE FORM RESULTING IN SMOOTH INTERIOR, RUSTIC EXTERIOR

MIX PRESSED INTO A SQUARE TEXTURED FORM AND THEN A BOWL FORM IS PRESSED INSIDE THE MIX

