HYPERTUFA

By: Janean Thompson
Master Gardener – Potter County, TX
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GARDENING IS MORE THAN PLANTS:

With ***hypertufa*** you can create original vessels/troughs/pots for any plants you might want.

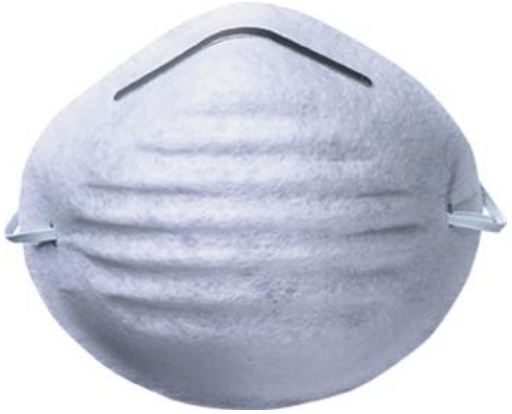
What is Hypertufa?
Why do we want to make it?

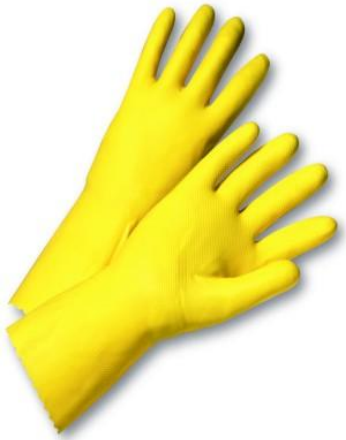
Tufa is an ancient stone that was full of air spaces. That made it very porous and light in weight.

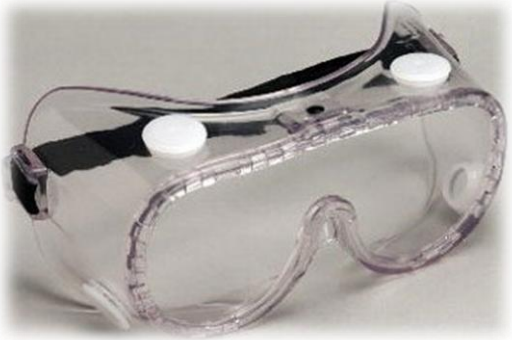
“Hyper”tufa is a man-made replica of that type of lighweight stone – one we can create from readily available materials in a very short time.

SAFETY FIRST

USE FINE PARTICLE DUST MASK, WATER RESISTANT GLOVES, GOGGLES (GLASSES)!







USE CAUTION WHEN POURING, MIXING DUSTY COMPONENTS!

<u>ADD WATER SLOWLY</u> AND MIX CAREFULLY.

USE GOOD COMMON SENSE!

General Info:

Protect surfaces – use old mulch bags, cleaner bags, sheet plastic, old shower curtain…

Wear old clothing (or a trash bag apron)

Don’t put any waste water down the sink

Scrape up spills

What is required?

<u>Basic materials include:</u>

White Portland Cement * (more later)

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Peat moss

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Perlite or Vermiculite

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Strengthening fibers * (for special apps)

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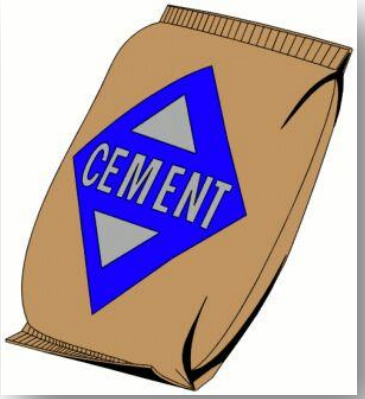
Sand * (in some formulas)

Strengthening fibers and Acrylic liquid

Miscellaneous tools/materials * (more later)

Portland Cement

1. **Portland cement is used because it is a smooth, debris free mix.**
2. **White or gray can be used…depending on the project. White is best when adding color.**
3. **Cement mixes that contain gravel, sand and other materials will effect the surface quality of the finished vessel.**



Portland is available in different bag sizes:

- **Most often 80 lb.**
- **Sometimes 40 lb. size.**

Avoid using old cement as it may be compromised resulting in failure of hypertufa. Buy unbroken bags -no holes or tears. Use as quickly as you can.

Peat Moss

Use good quality <u>gardening peat moss</u>. Screen to remove twigs and litter.

If you prefer, you can use <u>coir</u> (coconut fiber – a renewable fiber) or ground <u>pine bark</u> (finely ground – not chunky). Screen these to remove large chunks and to break up fibers.

Peat Moss (or your chosen material) is packaged in bales or bags.

Price is reasonable since the contents are usually packed tightly.

Do not use wet peat. It will not work well in the hypertufa mix.

Perlite

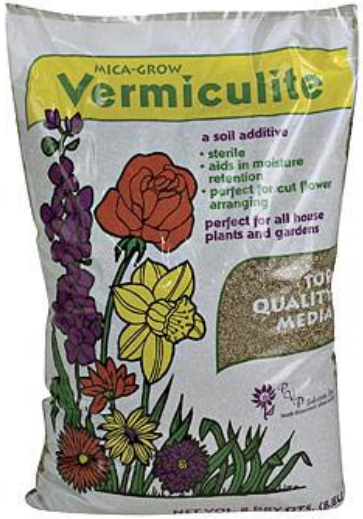
Perlite is a naturally occurring siliceous volcanic rock.

When heated to a specified point it expands from four to twenty times its original volume.

This expansion makes it light weight. Many applications for Perlite are being created.

Vermiculite

Also a naturally occurring mineral, Biotite. Heated – as with Perlite - and expanded. Name comes from Latin term *vermiculare, to breed worms,* for the way in which it exfoliates when heated.



Sand

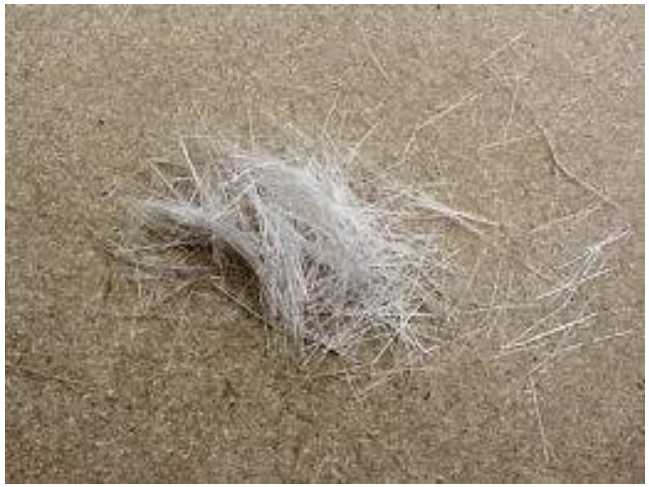
There are different grades of sand.

Any type can be used but the texture of your piece will vary with the texture of the sand.

Avoid using wet sand. Dry and wet sand measure differently and wet sand is harder to mix in.

Strengthening Fibers

Nylon/synthetic fibers can be added to the mix to add strength to the finished project.



Available thru concrete suppliers and online.

Synthetic fiber mesh is added with the dry ingredients and mixed well to distribute. It adds strength to the finished project.

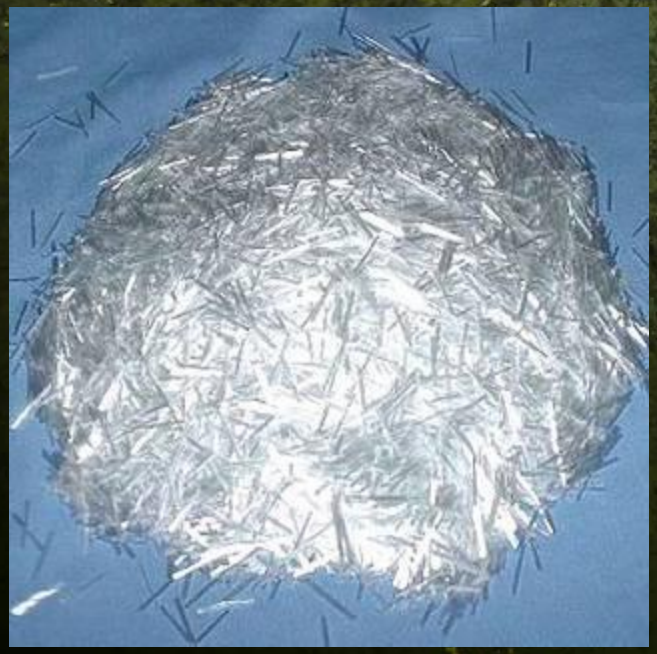
Available at cement suppliers, some home improvement centers <u>or:</u>

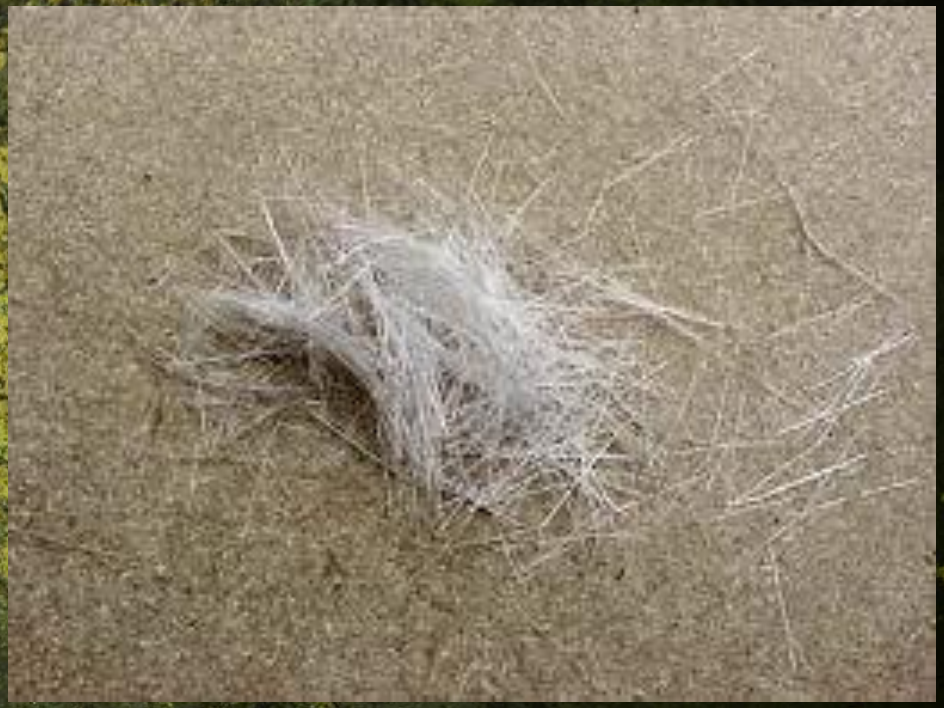
You can separate the fibers of fiberglass matting used for auto body work. Carefully cut into short lengths and open weave into lose fibers.

After project is dry, the fibers often are seen poking out of the concrete mix. To remove, use a cigarette lighter or other small flame to burn them away. Avoid breathing fumes.

Or smooth the wet surface with a tool to press the fibers into the mix.

Fiberglass





Cement strengthening fibers

Liquid Acrylic:

Adding liquid acrylic with or instead of water gives an added degree of permanence.

Find this with the tile grouting materials at a hardware or home improvement center.

Materials/Supplies You Will Want:

1. Disposable latex or plastic gloves
2. A measuring container (you measure in parts). The "parts" container you use is the container you fill with the different ingredients. It can be a cup or a bucket, or anything in between. It is a volume measurer.
3. A plastic mixing container (a flat plastic pan or tub is preferable to a tall, deep one).For large projects use a wheelbarrow.

4. A bucket of clear water and a small container to dip the water
5. A prepared mold or form or shape idea
6. Mold release product, if using a mold
7. Plastic wrap, dry cleaner bag or garbage bag to cover you and the work area or to use as a release agent.

8. **The time to come back to your project and mist with water when needed**

9. **A Misting bottle**

10. **A shady place to keep the new project out of direct heat or sun**

11. **A barbeque brush, wire brush or other bristle to rough up the surface**

12. Carving tools - chisels, files, nails, etc. to carve into the project if you wish

13. Patience for, at the VERY least, several hours to a couple of days, prior to removing your project from the form or mold and finishing the surface.

14. A <u>good recipe</u> for the mix of materials.

Optional: a tub, trash can or wading pool to set your project in to cure after it has dried for a couple days.

This step allows the hypertufa to gain strength during the curing process and removes any lime that might leach out of the concrete.

Drainage:

Remember to create drain holes with small blocks of wood, foam, small cans, etc.

Drilling holes is not easy.

DRY time and CURE time are different.

Dry time allows chemical changes in dry materials as they absorb water and set.

Cure time strengthens form and occurs after the drying time is completed.

Dry Time and Technique:

After form is filled, check after 24-48 hours to see if the mold can be removed. Be careful. Shape is fragile.

Once "set", remove mold, <u>cover form</u> and allow at least 3-7 days to dry your work. <u>Optimum: 2 Weeks</u>

Work should be covered and in a warm place. In cold weather, use a light bulb to provide warmth beneath covering.

Do not leave on ground or garage floor as the cold will migrate to the shape.

Plastic should be wrapped around form as closely as possible.

After removal from form and as drying is under way, you can soften the edges of your shape with a stiff wire brush. Sharp edges and rims are easily broken. Smoothing these surfaces is a good idea.

Time and experience with give you a "feel" for the best time to wire brush.

Cure Time and Technique:

Cure time sets the form in a more permanent bond and removes any lime that should leach from the concrete.

To cure the form, submerge in water. Change water every 3 days. Or hose it down 2-3 times a day for a week.

Seasoning the Cured Project:

Some hypertufa artists choose to leave their shapes out in the elements for a couple months to further season them.

There is no doubt that this will strengthen them, but it is hard not to put them right to work in the garden!

To Seal or Not Seal?

- **Some vessels will need to be sealed with a concrete sealer or acrylic clear coat.**
- **Helps resist water and premature aging**
- **Simply brush on with a foam brush. Multiple coats provide maximum sealing.**

FORMULAS

Viscosity Descriptions:

Thick mixes: Ideal for hand application into forms or hand building, hump-slump molding. Must be used for large shapes.

Medium mixes: Good for small to medium vessels in all forms of molds

Thin mixes: Good for surfacing rough areas

Pouring into shapes, but lacks strength.

ANY MIX CAN BE MADE IN ANY VISCOSITY.

Recipe 1:

The most straight forward and easy recipe:

1 part (measure) peat

1 part vermiculite

1 part Portland cement

Mix all dry ingredients together well. Add a small amount of water and begin mixing. Add more water as needed. To avoid over wetting, use less than 1 part water (same measuring container as above). Mix should feel like peanut butter.

Recipe 2:

1 part perlite

1 part peat

1 part Portland

1 part sand

The addition of sand adds weight, but also strength. Mix as above – dry mix well. Add less than 1 measure of water small amounts at a time - more as needed.

Mix should be similar to mayo or peanut btr.

Recipe 3:

Carving base mix:

1 part portland

1.5 parts Peat

1.5 parts vermiculite/perlite

Dry mix all ingredients. Add less than 1 measure of water and mix well…start with less water, then add more as needed.

When scooped up, mix should hold in a ball shape.

Recipe 4:
Strong Hypertufa Recipe:

1.5 parts Portland

1.5 parts perlite

1 part peat

5 parts sand

Fibers (a pinch for small works, a palm full for large works) (add to dry mix)

Dry mix all ingredients. Add water as in all recipes – but keep it thick.

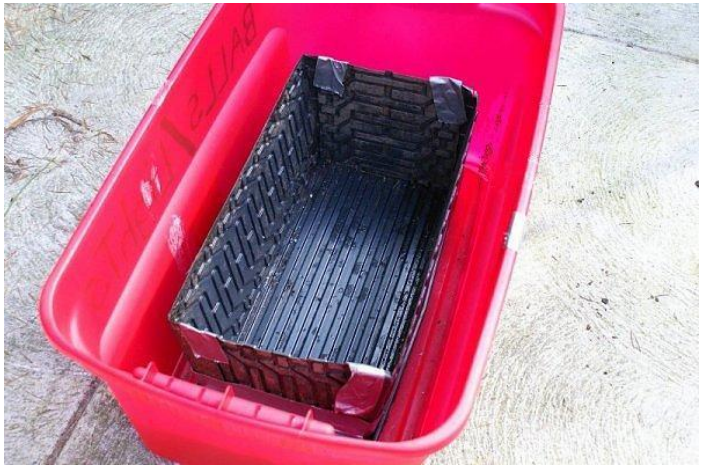
Investigate the Internet for Ideas:

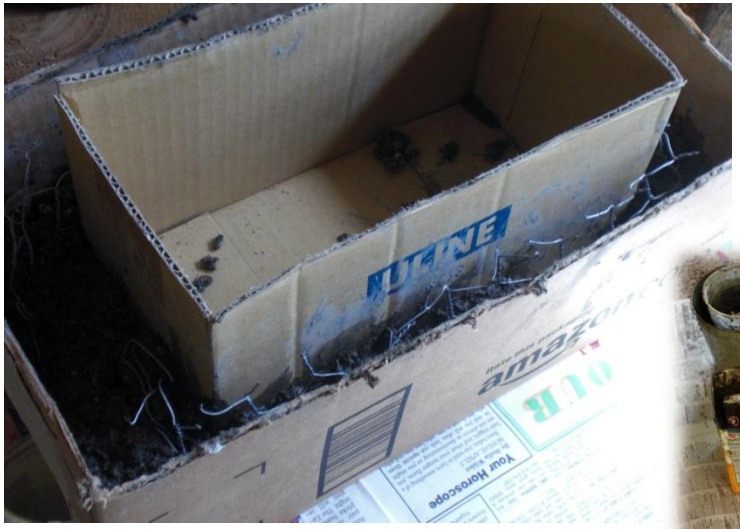
Explore the internet for more recipes and ideas for shapes and carving. There is a ton of info out there and it is waiting for you.

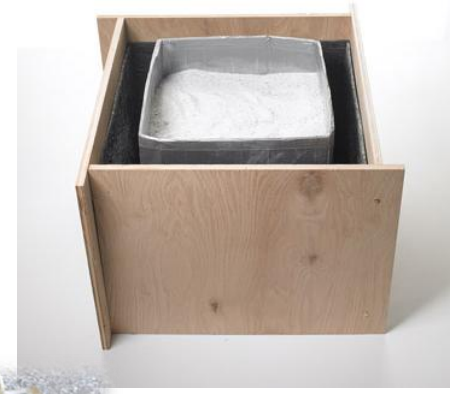
Forms and Shapes:

Collect different sizes of forms (dish pans, styro boxes, cardboard boxes, wooden boxes…). Find shapes that next inside of others with room for the Hypertufa mix to fit between.

Thickness should be 1-1.5 inches on smaller shapes and 2-3 on larger shapes.





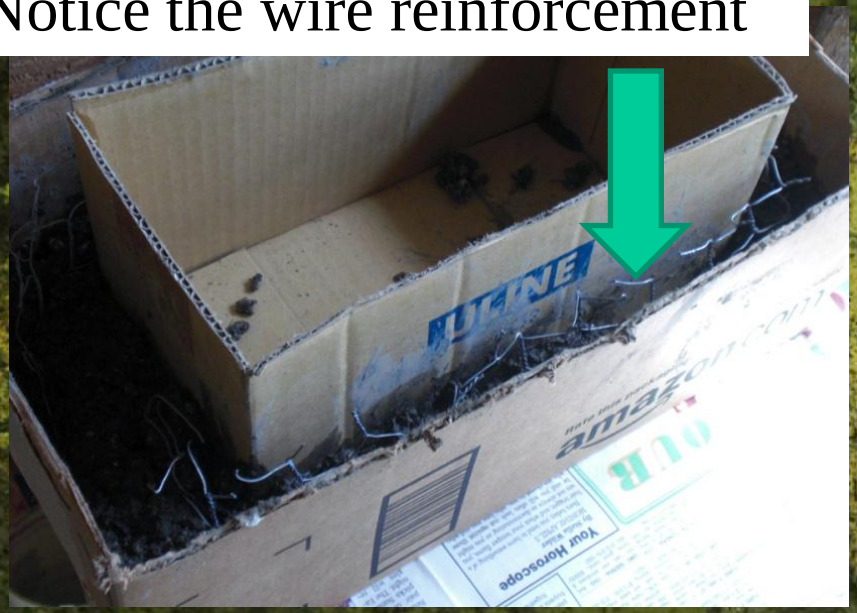


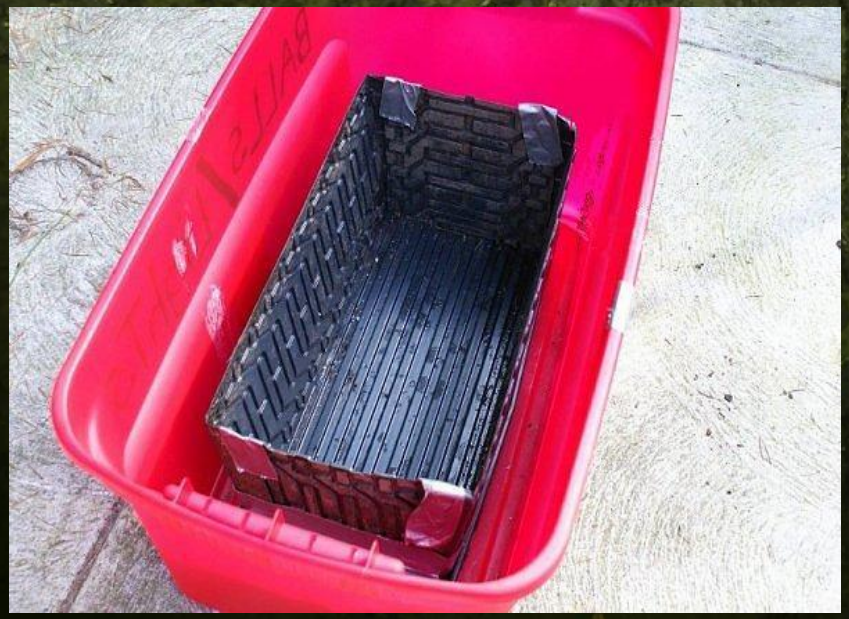
This form would be a good, simple shape and is easily filled to a desired thickness.

You would use a probe to test the thickness as you work.

Ideally you strive for even, smooth walls.

Notice the wire reinforcement





For any of these molds, you will fill the bottom of the shape, then set the liner shape in place. Fill the inner container with sand (bags) to hold its shape as you complete the walls.

Thin plastic can be used as a release agent. It will leave interesting texture and help with removal of finished shape. Use a probe to gauge thickness of walls.

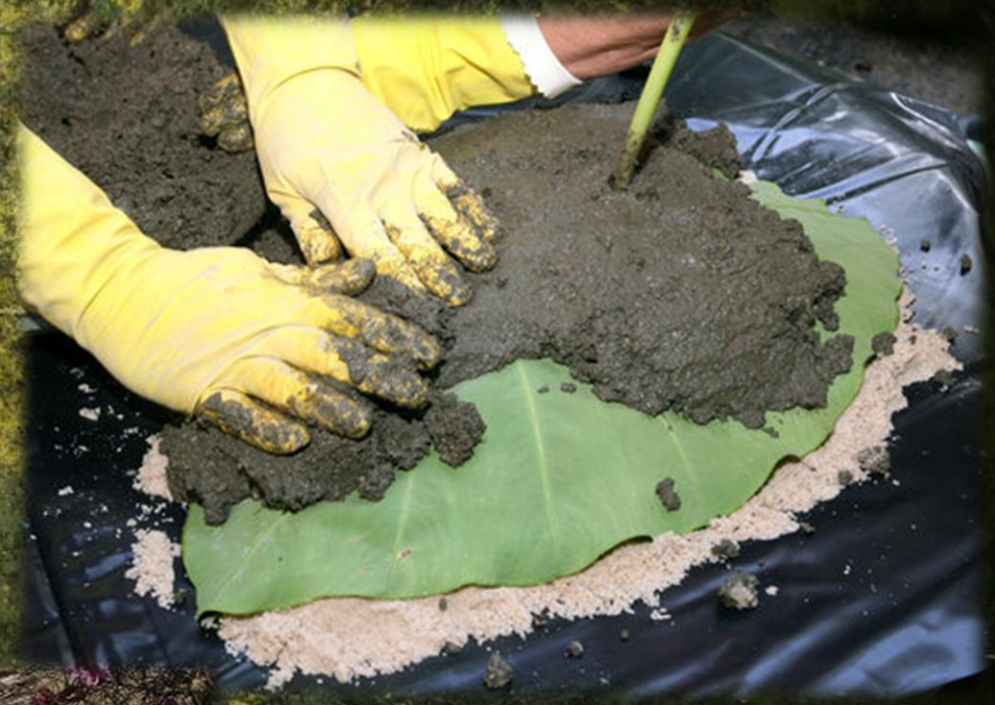
Sand as a Support Form:

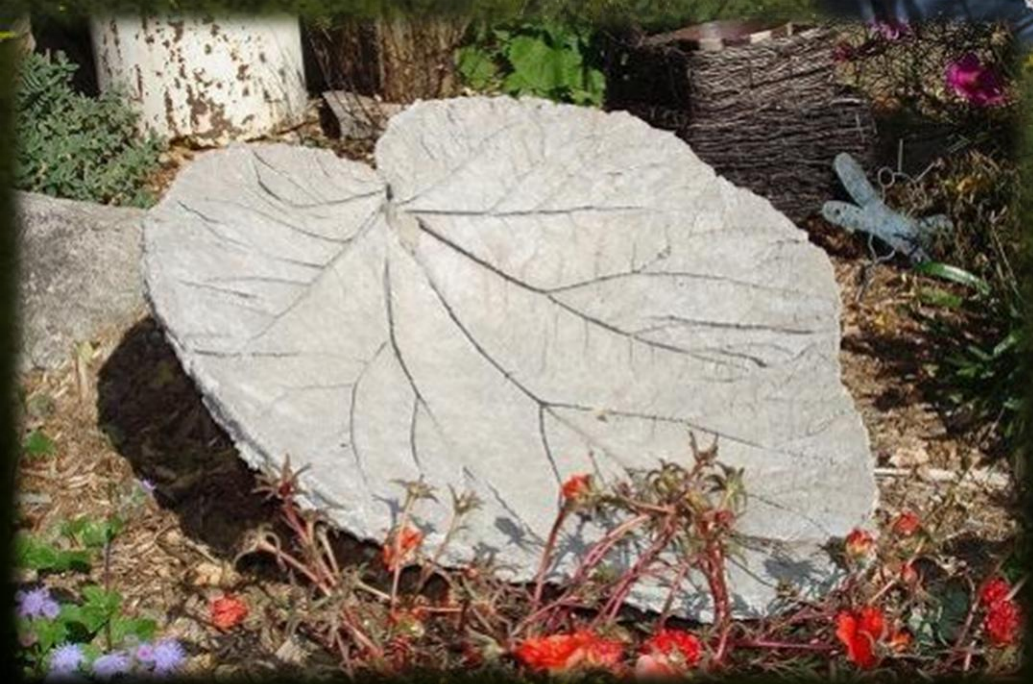
Hypertufa can be applied either on top of or into a form made of dampened sand.

Sand is great for making free-form troughs/ planters/ponds/sinks.

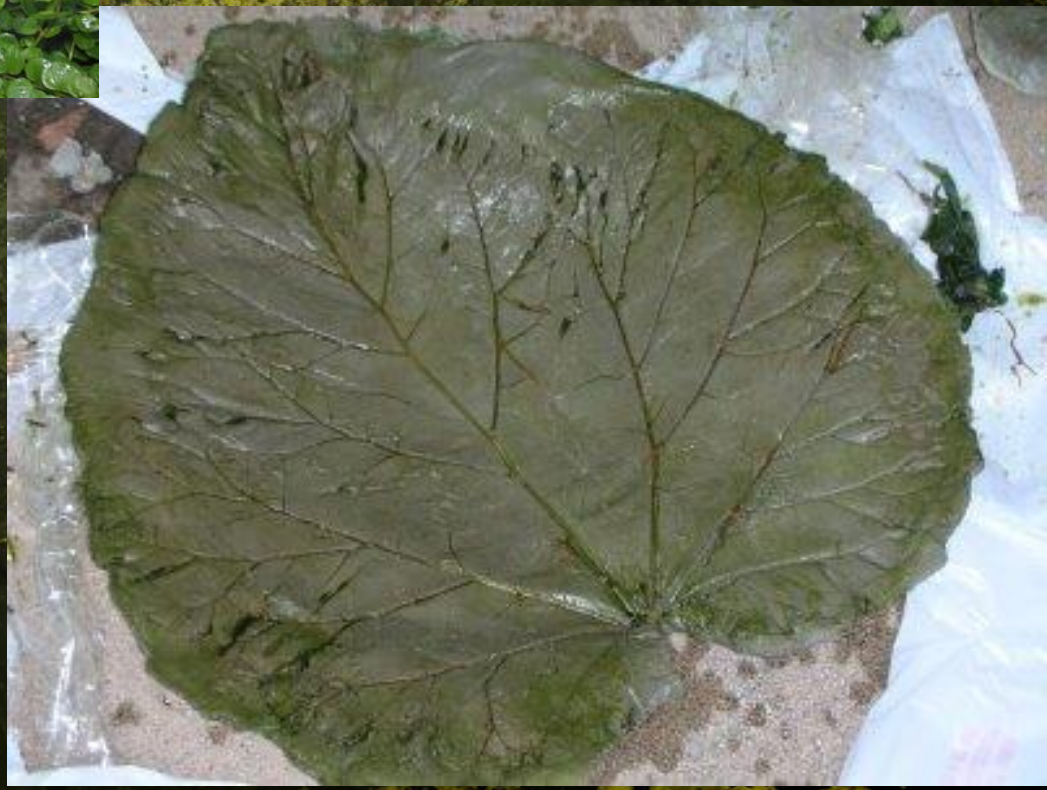
For a mound mold, pack dampened sand in desired shape and apply hypertufa over/into the shape: 2-3 inches minimum thickness.

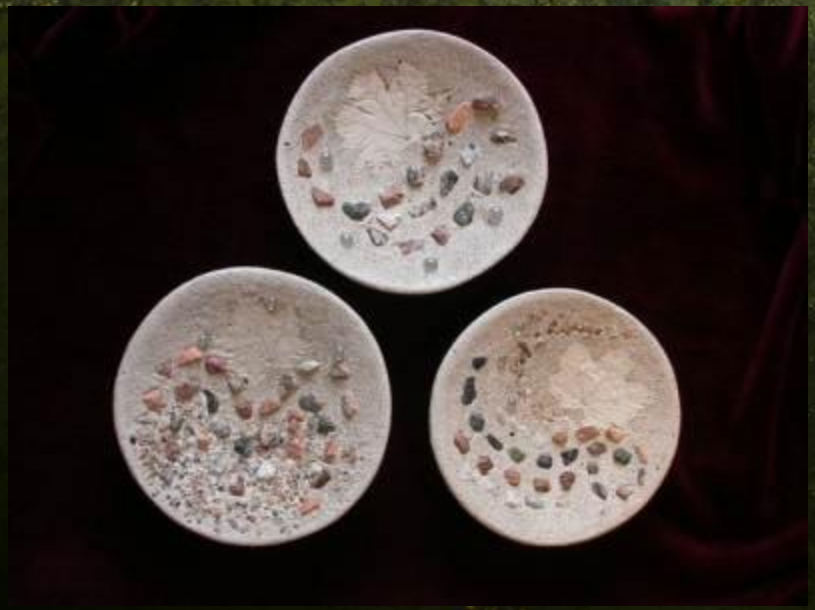
Using damp sand as a form to create a dimensional leaf from hypertufa (could use concrete only if preferred)





Leaf shapes made over sand mounds (cabbage leaf is painted)…also plates.



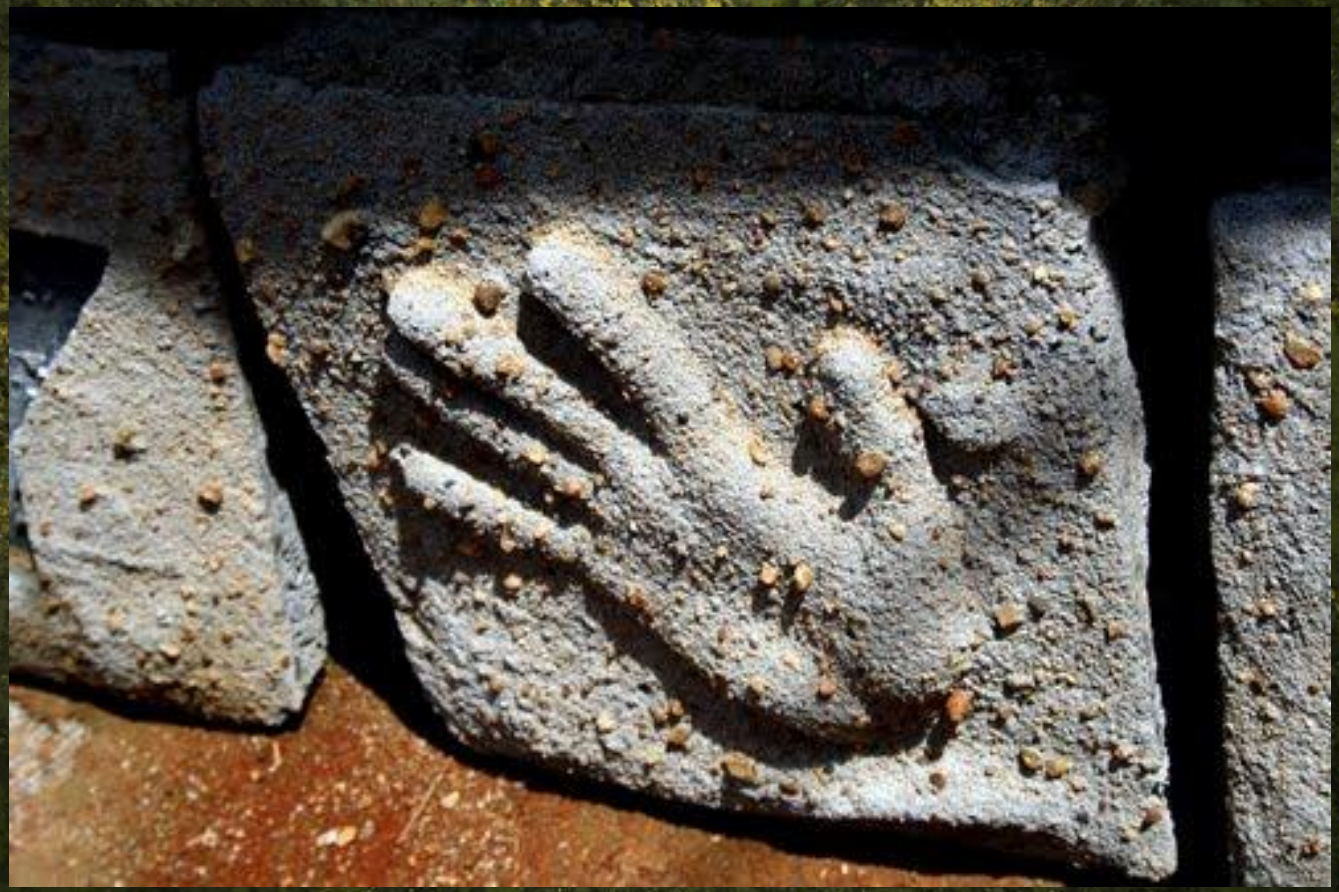


Or:

Fill a depression made of damp sand with hypertufa. No need to remove sand to dry, simply leave it in place for 1-2 weeks.

This is true with either slump or hump sand shapes.

When using either sand mold, a thick mix is best. Take hands-full of tufa and press it gently into place. After several hands-full, smooth evenly, then continue.



Molds:

Coat mold with release agent.

Cover bottom of form with 1.5 to 2 inches of tufa (3” for large forms)

Create drain holes with found objects

Set inner mold into place and fill around the edges.

Smooth top and let it dry.

Mold Release:

In order to facilitate easy removal from the mold, always apply adequate mold release.

Plastic release agents include: Vasaline, motor oil, Crisco, Non-stick kitchen spray, vegetable oil, W-D40

Wood is porous. Use lots of release or soak the wood first, then add an agent.

Terra Cotta is very absorbent. Always soak well then generously apply release agent.

When exterior texture is OK:

Release is easy when you line the mold with thin plastic. Cleaner bags do great…thin, lightweight and readily available.

Heavier plastic can be good because you can use the plastic to lift the shape from the mold. It does leave prominent creases on the finished shape.

General How To:

Gather materials

Set up mold/form (line or put on mold release)

Measure all dry ingredients

Add correct amount of water

Mix very well

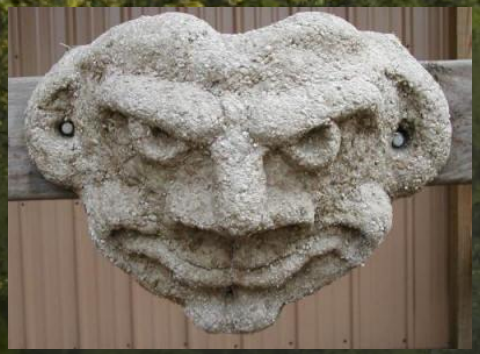
Fill mold

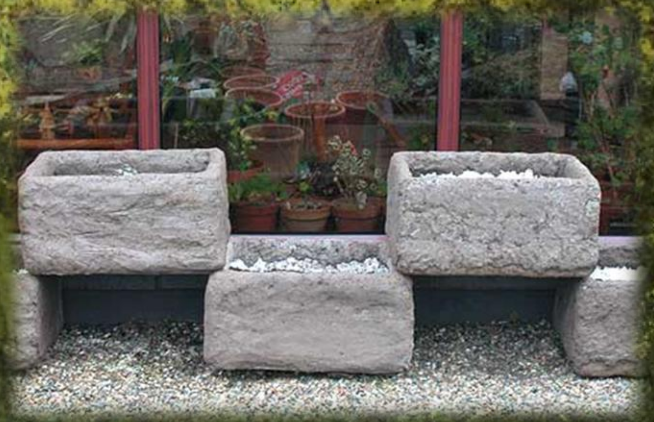
Dry

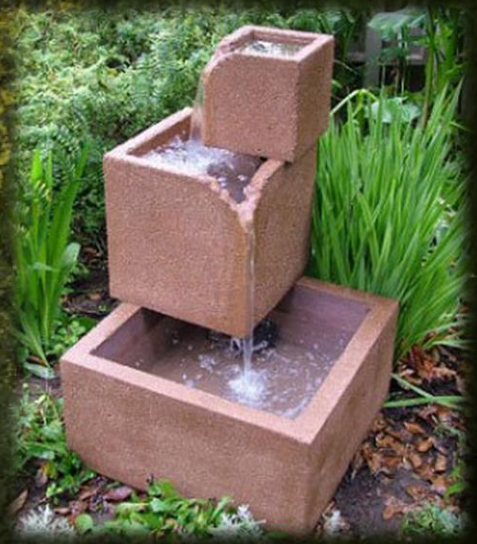
Finish

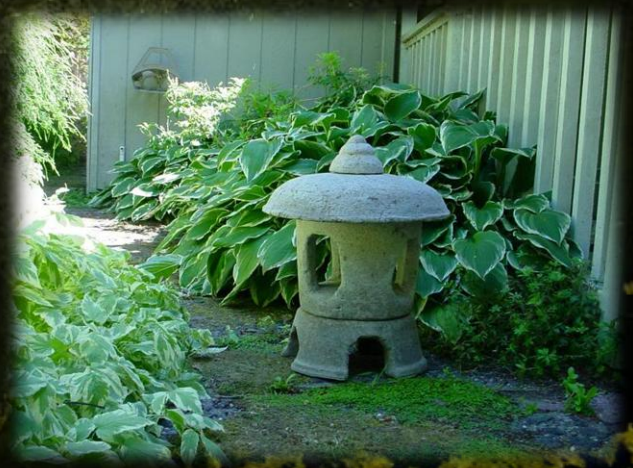
Soak and cure

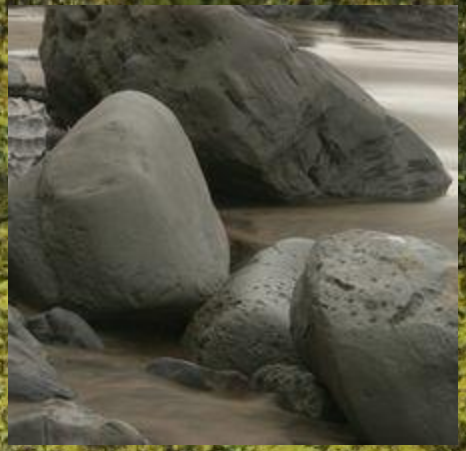
Online Samples

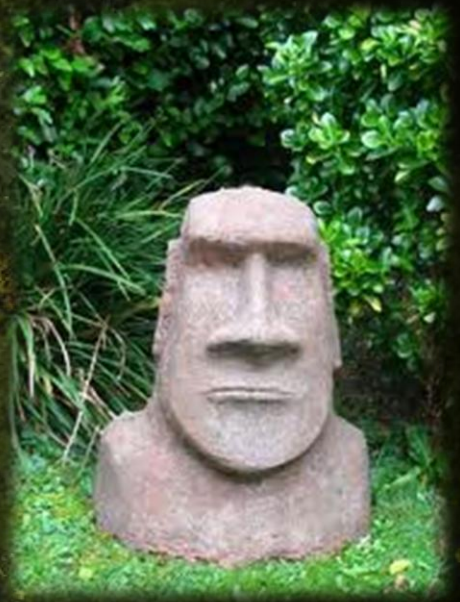


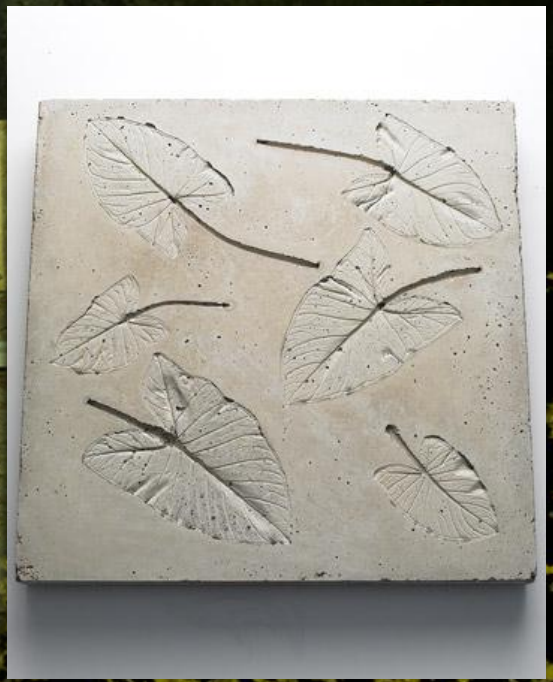


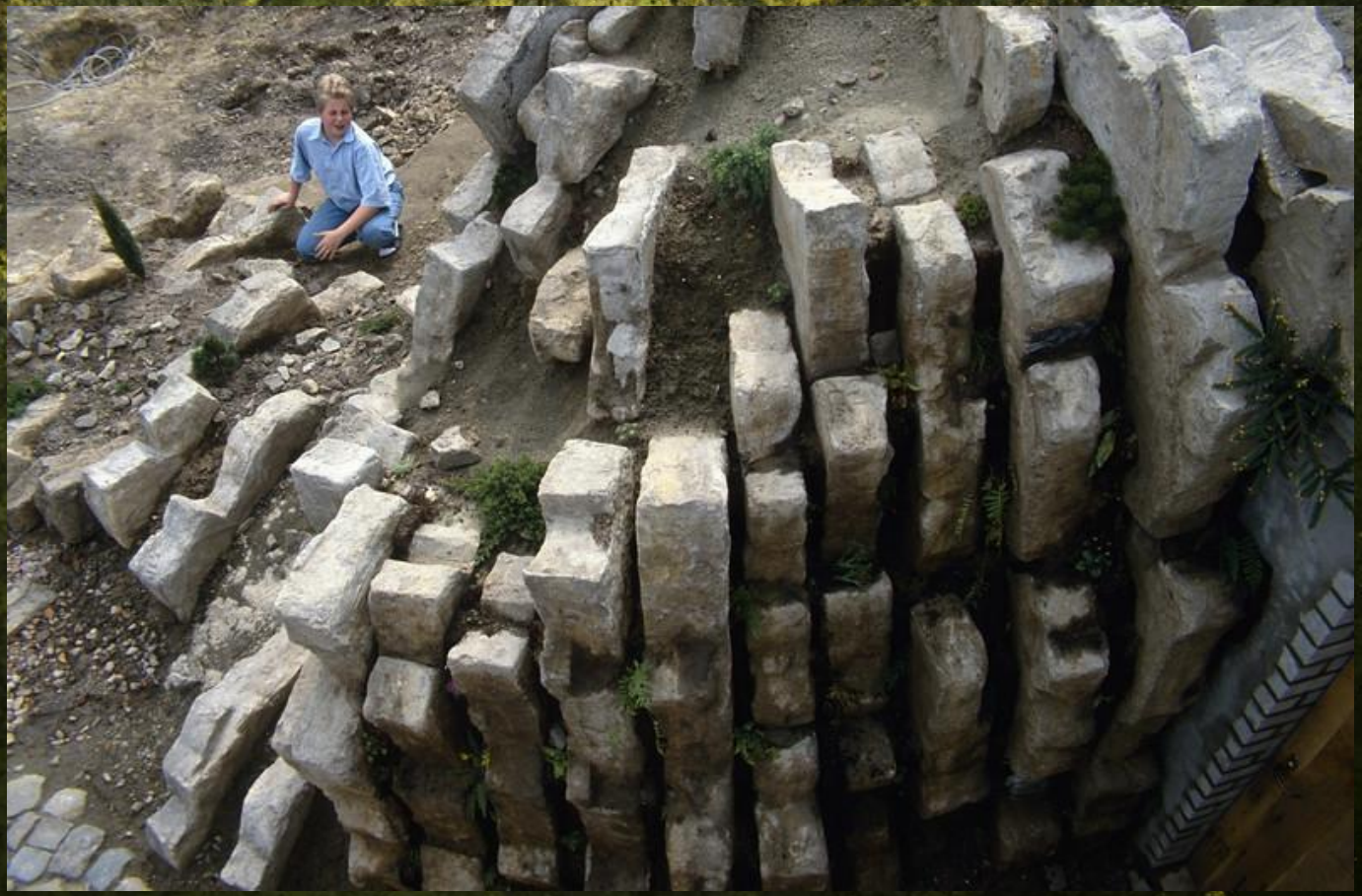


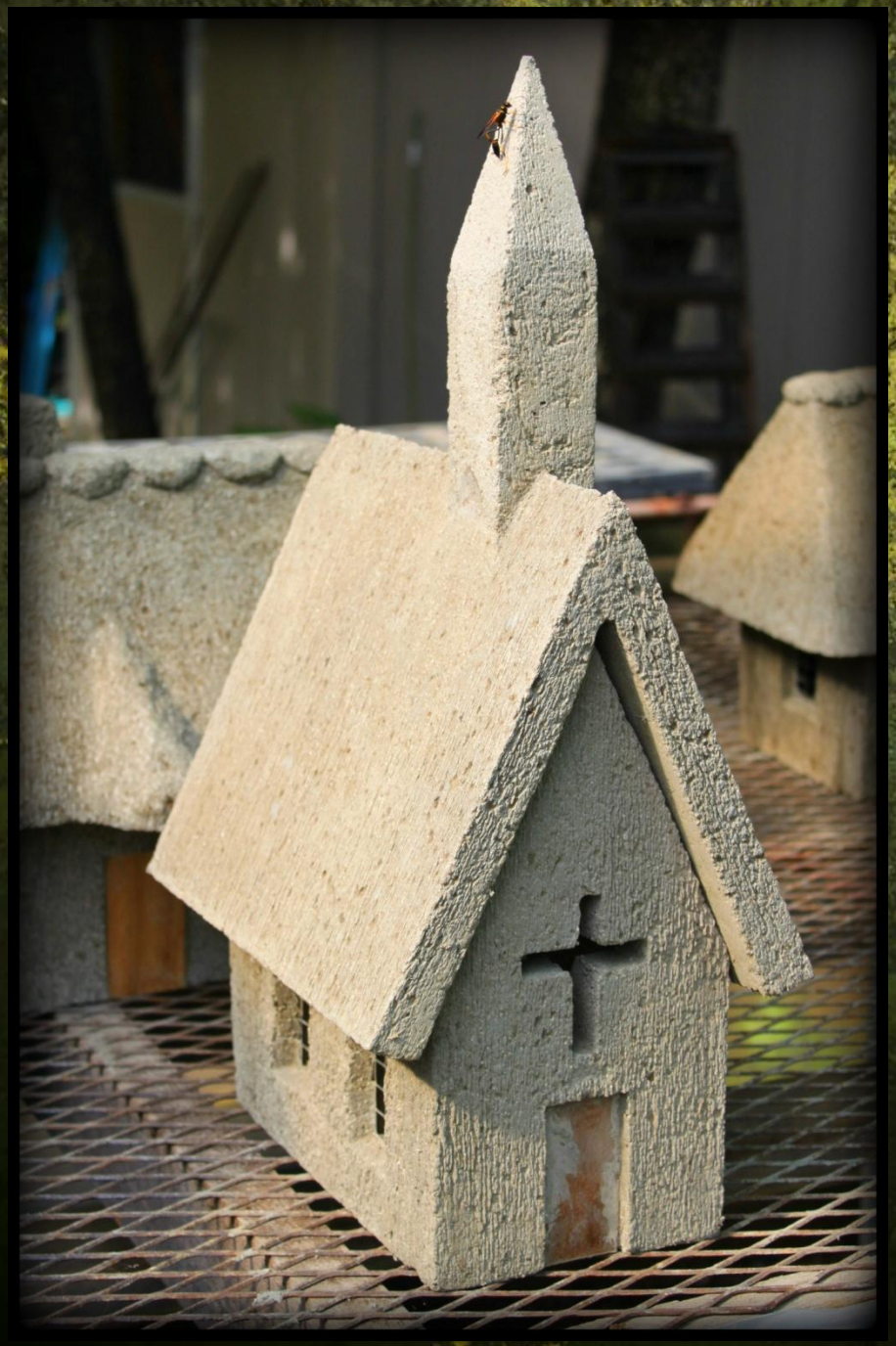


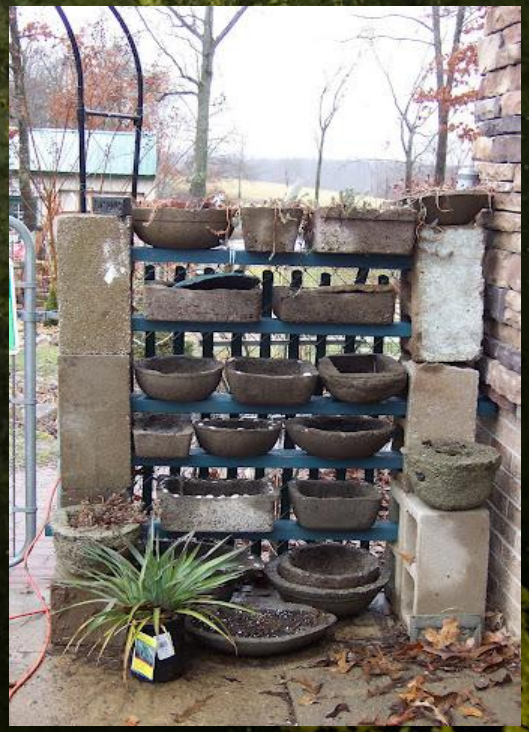












HOW-TO Books:

E Book:

The Hypertufa Manual

By: Claudia Brownlie, $25

(www.hypertufabooks.com)

E Bay has “how to” books

Also Amazon.com

(explore concrete work, too!)


The End

Presented by:

Janean Thompson

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