How To Build A Better Outdoor Pizza Oven

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Introduction

Several years ago, I wrote about how to build (the now-infamous) $20 outdoor cob oven. That oven design worked decently, produced a lot of delicious meals, and advanced my pizza baking fever to new heights. Since then, I've built several more outdoor pizza ovens, and each of them has been a significant improvement upon the original.

This newer rendition is slightly bigger, allowing for easier access to the oven interior. The insulation is vastly superior, resulting in better pizza and more food baking potential. This sucker gets hot, and stays hot… for a long, long time. The oven has a small roof shelter, protecting it against the weather, and a chimney keeps smoke out of the face of the fire tender. Best of all? The oven is still very inexpensive to build.

This is a very achievable, low cost and effective oven that will not cost you thousands of dollars to build. Here's a look at the new and improved outdoor pizza oven plans and how you can build your own.

The Better Outdoor Pizza Oven Plans: Overview

The design I propose and outline below is a highly insulated cob oven. For the uninitiated, cob is a combination of clay, sand, straw, and water. When dry, cob is very hard and durable, and highly capable of storing and releasing heat (given enough insulation.) The focus here is, of course, building with natural and recycled materials whenever possible. This oven is designed to be very inexpensive, consisting of materials that should be widely available.

The oven is no slouch in the baking department. With a 27″ diameter interior, you can comfortably cook two 8" pizzas at the same time while maintaining a small fire for cooking the toppings. We've made up to 60 or more pizzas in a single extended baking session, and they still cooked in about 3 minutes after several *hours* of use. (They typically cook in 60-90 seconds at the beginning of the baking session.) Needless to say, this sucker is very insulated. Not to mention, the range of other baking possibilities is vast — bread, roasts, pies, cookies, etc. are all fair game, assuming you have the gumption to prepare all those foods and harness the tremendous heat from the oven. This is much more than a just an outdoor pizza oven — this is a highly versatile, powerful baking tool.

Ok, let's get on with the building plans, shall we?

Don't Just Throw it Anywhere: Siting Your Oven

Siting your oven is an important consideration, and can make the difference between an oven that you rarely touch because it's too far and isolated from your home or main kitchen, and an oven that creates its own positive space with ample room to prepare food for baking and to gather eager friends around for a big pizza party.

Questions to consider include: how close will it be to your existing indoor or outdoor cooking space? Will there be enough room to build around it later, if need arises for space to seat your growing posse

of pizza-loving guests? How close is your firewood storage? What kind of shelter will you construct? Once your oven is built, it ain't moving. These suckers are permanent fixtures.

Build a Sheltering Roof

If you live in anything but a dry desert climate, I am going to insist that you build a sheltering roof to protect your cob oven. Rain and moisture can quickly take a toll on an oven made of mud, and firing anything but a perfectly dry oven will be an exercise in futility — why spend more fuel and time drying your oven when it already takes 1-2 hours to get the cob up to baking temperatures? An oven that continually gets wet will require a whole lot of on-going maintenance work, as well. It makes excellent sense to go ahead and build the shelter before you start the oven, too — this way you can safely protect your work while construction is happening. (It's also difficult to do framing work around the obstacle that is the oven itself.)

The absolute minimum shelter I consider necessary for a cob oven is represented here — if you afford it, don't skimp on protecting your oven

The absolute bare minimum shelter I consider acceptable for the oven is about 7'x8'. (These dimensions are for the frame — the roof overhang will add another 2' to each dimension.) This is what we recently built for friends, based strictly on the limited materials they had on hand. Local weather conditions will dictate how you design your roof, but the simplest solution is a lean-to

shed roof with enough overhang to protect the oven and the frame itself. The options for a sheltering roof are literally limitless, and it can be as simple and austere, or extravagant and beautiful as you want it to be. Whatever you decide, just make sure the roof extends at least enough to protect the oven from blowing rain. Space for food prep is highly recommended as well. You'll be much happier this way.

Dig a Drainage Trench

Cob ovens are extremely heavy. A foundation helps support the weight, raise the oven off of the ground to a comfortable working height, and should include sufficient drainage to protect the oven from freeze/thaw and other moisture damage. To that effect, you need to go down before you go up. Start off by measuring a circle as large as your desired oven. My recommendation is a 27″ diameter oven. (**Note**: that means the interior cooking space is 27″.) For a 27″ oven, you'll need a foundation much larger than that, however. Factor in another 8″ for the cob dome itself (3-4″ thickness around the entire sand form), 16″ for insulation, 3″ for plaster, and another 4″ for the diameter you may lose as your foundation grows taller and tapers inward. That's about a 58″ diameter foundation.

An 18″ deep gravel bed for draining water away from the oven site — daylight drain is pictured in lower left corner and covered with soil

You'll want to mark out your desired size on the ground and dig down, removing all the topsoil in place. Ideally, you would dig down as far as your local frost line, but you may choose to go less depending on what is convenient. If you don't expect to have your oven around for the next 100+ years, it may be less important to dig that far down, and perhaps get at least 18-24″ deep to deal with 95% of all threats of freeze/thaw damage. (If you live in a southern climate, it may not even be a concern. Lucky you, in that case.)

Either way, dig a hole as deep as you deem appropriate, and dig a connecting trench downslope that will carry water away from the foundation. The trench should exit the ground at daylight, meaning the trench needs to be as long as necessary to be able to exit at the surface of the soil. Put a 4″ perforated pipe in there for the best drainage, or simply backfill it with gravel. The deeper you dig your hole, the further you'll have to dig your daylight drain. The greater the slope on your land, the less distance you'll have to cover. Make sense?

Backfill your new hole with gravel. Gravel is an excellent drainage medium. Any water that finds its way under the oven will fall easily through the gravel, and then be carried away from the site once it hits the bottom of the hole and finds the daylight drain. Be sure to tamp every 6″ of gravel — don't just dump it all in there at once! Tamping ensures that the oven will not settle in any unpredictable ways. You could also stick a perforated pipe under the oven to ensure optimal drainage.

Building a Solid Foundation

As stated above, the foundation serves several functions. It's also an opportunity to define the character of your oven. Stone is an excellent, timeless choice, either dry stacked or mortared. In areas without stone, brick or busted concrete (a.k.a., "urbanite") make good alternatives. If you have a bunch of homeless cinder blocks around, that could work equally well, though they aren't as attractive as the other options. Other options could include a wood crib, designed like a log cabin with notches on the corners and backfilled with rubble or gravel (but make sure the wood is insulated from the heat of the oven, in this case), recycled tires filled with busted up junk.... be creative.

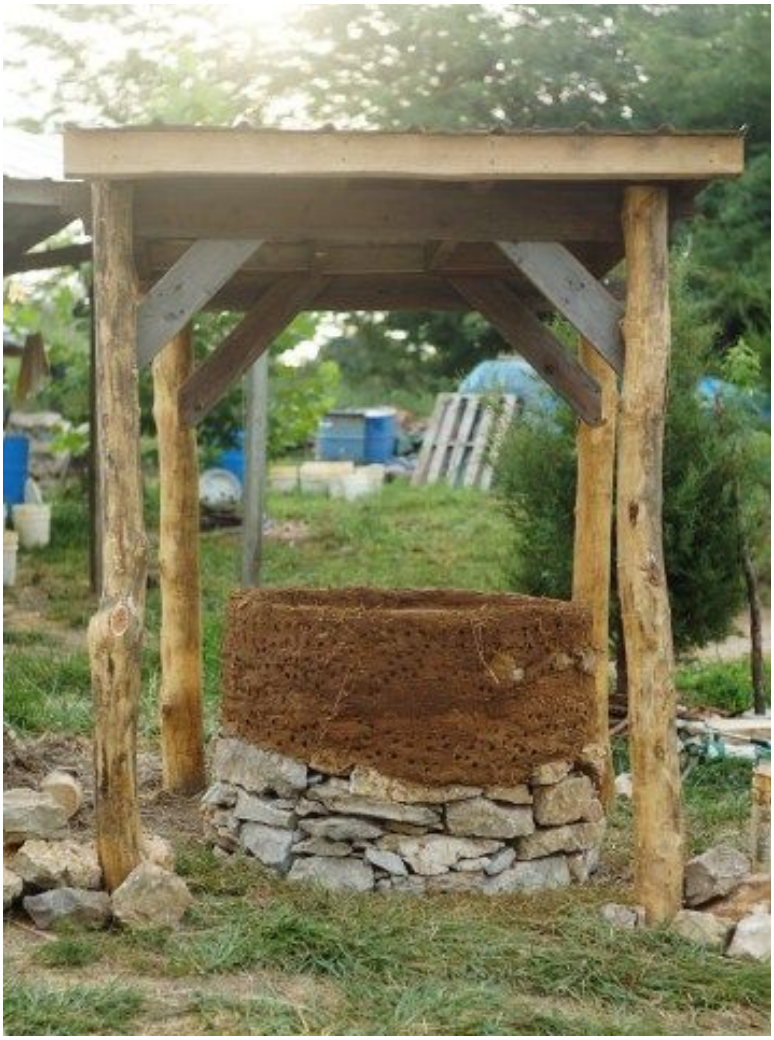
The start of a simple dry stack stone foundation

A 36″ tall dry stacked stone foundation — this foundation represents quite a bit of material

We opt for stone whenever possible and build up at least 18″, but preferably 36″. In cases where we don't have enough stone to go the full height (more on that in a minute), the remaining height can be built up with cob. The stone is dry-stacked around the perimeter of the drainage hole, and filled in the center with all manner of crappy broken bricks and busted concrete. That stuff will never be seen again, so the center of the foundation is a good way to use your worst materia

Junky rubble (broken bricks and cinder blocks, etc.) make for great fill in the center of the foundation

A 40″ height is a recommended average hearth height, so your foundation should be nearly three feet tall. (The hearth insulation and fire bricks will make up the last few inches.) That ends up being quite a fair bit of material! Don't underestimate how much stone or rubble you'll need.



You can use cob to make up the difference in your desired foundation height, as seen here

Insulating the Cooking Hearth

Insulating the cooking hearth is crucial to taking full advantage of the blazing heat of your oven. You can use one of several materials, or a mix. I use either a combination of beer bottles and dry perlite, or straight perlite. The advantage of using beer bottles is their wide availability, of course. Using straight perlite without bottles eliminates the need to "cap" the insulation layer with cob (which will leech at least some heat from the firebrick hearth). Perlite also offers excellent insulation values but is dusty and synthetic, and obviously more expensive than throwaway bottles. The choice is yours,

however. I have not noticed a significant performance difference between using a bottle and perlite mix compared to straight perlite.

Beer bottles make for a very cheap method of insulating the firebrick hearth

A good 4″ layer of insulation is an okay minimum, though you may want to aim for a full 6″. (In my firing experience, 4″ seems adequate for the job. By “adequate” I mean that one oven we built with this method demonstrated excellent heat retention in the hearth.) Build up a thin cob ring wall all around the perimeter of the oven foundation to contain the insulation material up to the height of your desired insulation level.

Note: If you did not use any cob to bring up your foundation height earlier, you’ll want to create a nice level surface with at least an inch or two or material prior to this containment ring step, as well.

Spread your beer bottles within the cob containment ring, and be sure that none are touching. The less they touch, the less chance something will shatter down the line. Once they are arranged, go ahead and dump your perlite, and please do make sure you are upwind of the dust!

Perlite takes up the space between beer bottles

The next step can be eliminated if you use straight perlite: go ahead and use some cob to “cap” the insulation. Try to use as little as possible — an inch will do it. You should aim to create a nice level plane for the fire brick hearth. A wood float and/or trowel should help in establishing a smooth surface. Try your best to eliminate low spots — this cap doesn’t have to be 100% perfect, but the closer to level the better, of course. At this point, I would wait until the cob cap fully dries before preceding. It shouldn’t take long with a day or two of sun and wind. If you don’t wait, you risk the chance of your fire brick hearth settling.

Using cob to make a thin, flat surface for the firebrick hearth — a trowel aids in smoothing the cob

Build a Fire Brick Hearth

Fire brick is a block of refractory ceramic that is much more capable of withstanding high temperatures than typical red building brick. They range in cost from $1-$3 each brand new, but it's likely you can find some used with a bit of searching. Check craigslist, or get in touch with local potters who may have some extra lying around from a kiln build. I've been able to get recycled bricks for $1, and new bricks for as little as $1.35 each. Be sure to get bricks that are at least 2 1/4″ thick, if not 2 1/2″. (That 1/4″ doesn't seem to make a huge difference -- work with what you can get!)

Fire bricks make a lovely hearth capable of withstanding a very hot fire, and they store heat that will help bake your pizza crusts through the power of conduction. Laying them out is very simple, as they do not need any mortar.

Setting the firebrick for the hearth, ensuring a level surface

Determine the center of your oven, and mark it with a scratch or twig. You'll want your entire hearth pushed forward of center, as the "tongue bricks" should overhang the front edge by an inch or so. Using some sifted sand free of pebbles, lay out a thin, level bed for your firebricks. (You can run sand through a 1/16″ window screen to remove pebbles and larger particles.) You will need 18 bricks for your cooking surface, and another four for the tongue/door support. Line up and center the tongue bricks, and try to hang them off the edge by a good inch or so. (This will make it easier to hold an ash can under the hearth when sweeping coals out later.)

You can lay out the remaining 18 bricks as I did in the image above, or do 3 rows of 6 bricks each. P.S.: the reason 27″ makes a great oven size is that you are using the maximum surface area of the fire brick. Fire brick dimensions are 4.5″x9″, so 6 bricks x 4.5″ wide = 27″ wide.

When placing fire brick, be sure that you slide them downward into position. Do not get sand between the bricks. Use the butt end of a hammer to set them and to make tiny level adjustments. Your bricks should be level and flat — the flatter the hearth (meaning, no brick corners jutting up), the better your cooking experience will be. You don't want your crusts or bread getting caught up on anything. Don't be afraid to start from scratch if need be — setting the hearth doesn't take much time, and once it's set, it's set. There's no changing things later.

Building a Doorway Template

Once your fire brick hearth is complete, it's time to build the doorway to your oven. Seems out of order, right? Building the door opening before you build the dome ensures a nice fit, however. For this oven, I am going to propose a simple cob arch opening.

Building the opening is one of the few times you need to be pretty precise about some of the measurements. That's because the optimum door opening in a cob oven is 63% of the overall height of the interior dome. The classic dome as suggested by Kiko Denzer is 16″ tall, which means a 10″ opening is ideal. That's what I've always done and it's been solid, so I'm going to propose you do the same. This ratio of door opening to dome ensures an excellent draft while firing. The other important ratio is door width to dome width. Ideally, the opening should be about 50% of the dome diameter. For a 27″ dome, that means a 13.5″ wide opening is in order. A little wider should not be a problem. In fact, it's much easier to navigate food in and out with a slightly wider opening. Now you can make a template based on these dimensions

A simple doorway form. This will support the cob arch — note the 1″ shim sticks

The simplest template I've designed is two pieces of wood (or plywood), cut to the same shape and size. I draw my 13.5″ width and mark the height — however, I'm going to reduce the height to 9″ (instead of 10″) here. This is because the form will be propped up on 1″ shims when building the

actual arch. The shims will make up the height and allow the form to be removed much more easily. Okay, so… using either a compass or bucket lid, I trace an arch on the wood. The arch should be wide and stout, not pointy and narrow. I start the curve an inch or two from the bottom, as opposed to the corner itself. Using a jigsaw, cut out the shape, trace onto another piece of wood, and cut again.

Now you can join these two arch templates, and for that I recommend two layers of cardboard. Set the two templates about 8″ apart, and cut two lengths of cardboard 8″ wide. Using small tack nails or tiny screws, attach the cardboard to the top of the arch template pieces to create what looks like a tunnel. The point of all this is to have something rigid to use as a backing to build your cob arch against.

Make the Cob Arch and Install Chimney

With your form complete, you can set it on the protruding fire bricks of your hearth. Center the form, and don't forget to prop it up on 1″ shim sticks. Now you're ready to mix up some cob and build the arch. (See the last two pages for instructions on how to make the perfect batch of cob.) Make a nice sticky cob mix with a good amount of straw, and build up the arch evenly and in layers. Knead the layers very well together — you want the arch to be very solid and strong, of course. As you approach the top of the arch, you should make some especially straw-heavy cob and span the peak with long cob loaves loaded with straw that is parallel to the curve of the arch.

Some sticky, straw-heavy cob — perfect for finishing the top of the cob arch

As you are placing these final straw-y cob loaves, you'll want to position your stove pipe. It helps to have extra hands here. You'll want a single piece of galvanized stove pipe, single wall, 6″ in diameter and 24″ in length. The stovepipe should be positioned in the center of the arch, at least 1-2″ from the dome side of the doorway opening. (You want to be able to close off the dome from the chimney with a simple wooden door when you are baking later.) Use a short level and make sure the pipe is totally plumb.

A roughly finished cob arch with stove pipe freshly installed

Do your final cob shaping — it's easy to make the arch a bit top-heavy. Try to avoid that. You can build up something of a "cob collar" around the stove pipe to give it extra support, too.

Making a Sand Form

Now it's time for one of my favorite parts of building an outdoor oven: preparing to build the cob dome. Sand is a perfect medium for forming up the dome. Think of the sand as the void of the oven. You want to shape the sand to the correct size and proportions for your actual cob dome. The sand will support the cob while it firms up and it later gets removed to encourage faster drying of the cob.

A 27" diameter circle is drawn out on the fire brick

Start off by drawing a 27" diameter circle on the fire brick hearth. Use a pencil on a length of string and trace your circle. It should take up most of the brick area. Get a wheelbarrow (or two) of sand and start loading it by the shovelful onto the bricks. As you continue to add sand, you should periodically wet down the sand with a watering can so it sticks to itself. If you don't wet it, the sand will slide off itself. If it's too wet, the sand will slump.

The nearly finished sand form, somewhat like an egg cut in half — note the stick with the 16″ height mark

I like to shape the sand form with a roughly plumb face at the bottom 2-3″. (This makes the edges of the oven interior easier to clean out later.) The taper should be slow, gradual and rounded, and the overall shape of the oven should be something like an egg cut in half. I'm personally not a fan of the hershey kiss-shaped cob ovens out there. Putting the peak of the dome smack in the middle isn't as great for heat flow, either. Think of the peak being somewhere about 1/3 in from the rear of the dome.

Wet newspaper is a good barrier between the sand form and cob

Mark a wood stake at 16″ and insert it into the sand form at a point when the stake will stay upright. This 16″ mark is the peak of your oven. When you reach the mark and you're done adding sand, be sure to take a little bit of time to do some final shaping with your hands or a smooth piece of wood. Your dome should be consistent, smooth, and of pleasing proportions. Don't spend all day on this thing, either… just saying. It's a simple step.

Finally, tear up some sheets of newspaper, dip them in water, and lay them across the dome in one or two layers. This will help keep the sticky cob from messing up your freshly shaped sand form.

Building a Cob Dome

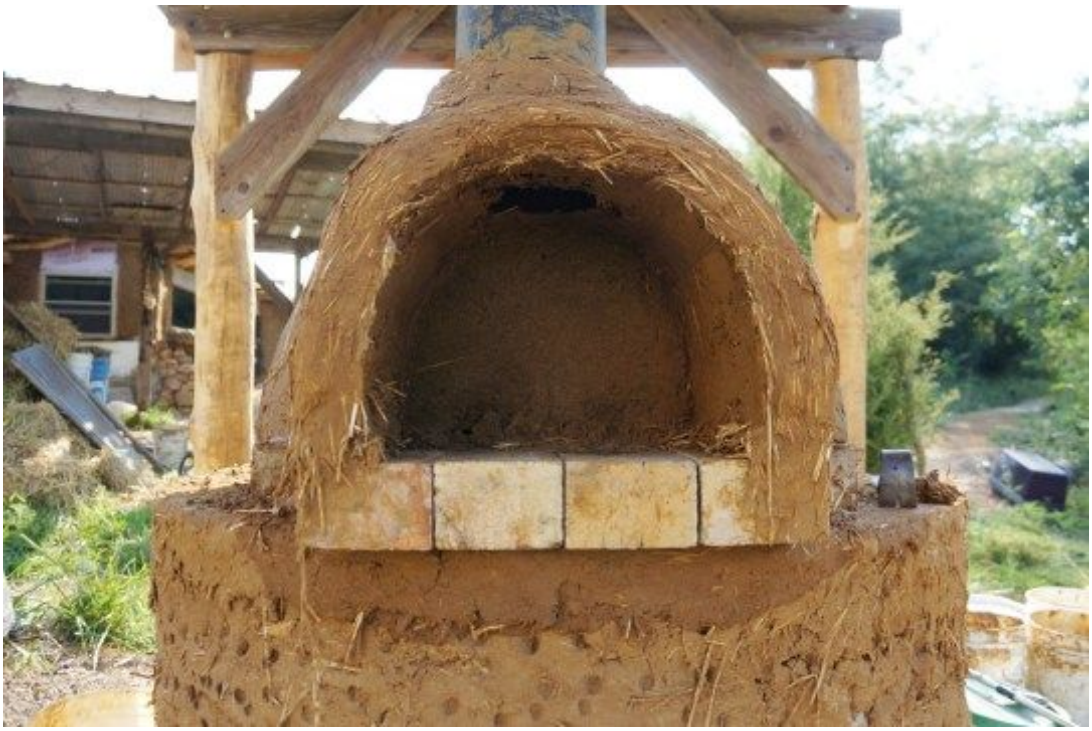
Once your sand form is complete, you should continue straight away to building the cob dome. You can use your leftover cob from building the doorway arch, plus probably one more batch. The cob dome should be 3-4″ thick all around the form — about the same width as your hand. You can use your hand as a measuring device as you continue to build. There's a good argument to making it as little as 2" thick as well -- the thinner the dome, the faster it will heat up. Try for 3-4" for your first oven.

I use straw in my cob for the dome. I see no harm in that — cob is much stronger with straw, and it really won't burn out anyway. Build up the dome evenly all around the perimeter, and avoid stitching the cob in the direction of the sand. Meaning, when you use your fingers to stitch the subsequent layers of cob around the sand form, don't push the cob into the sand itself. Be a bit gentle here.

A 4″ thick cob dome gets built around the sand form

Also, as you start to climb the dome, try to maintain your width carefully... When you're at the peak itself, still remember to stitch the cob back into itself. Be careful. Your dome should be equally thick all around, but don't sweat the small stuff. This is the last time you'll ever see the dome from the outside, so little visual inconsistencies are not a big deal.

At this point in the game, I like to give the cob a day or two (or three, depending on the sun and wind) to firm up a bit. Once the cob is firm to the touch, the doorway template can be removed, and the sand scooped out. With the sand removed, the cob will dry out much faster. Try to be patient, and let the cob dome dry out most of the way before proceeding to the next step.



The doorway template is removed... and it's time to scoop out sand!

Straw-Clay Insulation

Now that the sand is removed from the dome, you can think about insulating the oven. If you're in a very wet and shady location, and your cob dome is slow to dry, I recommend building a small (very small) fire just to speed the drying process up. If your oven is exposed to a good breeze and some sunshine, things tend to dry out fairly quickly once the sand is out of there.

I suggest insulating the oven in a thick layer of "light clay straw" or "straw-clay" insulation. (Yes, I know -- I dislike the name, too.) However, light clay straw is nothing more than loose straw tossed in a very thin clay slip.

Tossing up some 'light clay straw' insulation in a wheelbarrow

To prepare your light clay straw, grab a wheelbarrow (or tarp), and shake a few flakes of straw out. To make your clay slip, use a high-powered electric drill with a large paddle (like a Hole Hawg), and spin up a 5 gallon bucket partially filled with slaked clay. The clay slip should be very thin, like the consistency of heavy cream. It really shouldn't be any thicker than that. So a little bit of clay and a good amount of water will go a long way. If you don't have a Hole Hawg, take some nicely soaked clay and use your hands and arm as a paddle to stir up the clay, dissolving it more completely in the water. It's much more laborious this way, but it's doable.

Now it's time to pour your prepared clay slip slowly over your straw. The point here is that you really don't need much of it. Just a little bit, I promise. People are always surprised at how little is required. The best way I can describe how much slip you should use is this: think of the straw as lettuce, and the clay as a vinaigrette dressing — you only want to coat each straw strand, not saturate the whole business. The clay is merely a binder, and you don't need much at all the achieve the effect. So go light!

Mixing up the straw and clay should only take a minute or so. Once your straw is fully (lightly) dressed, it's ready to use. You're going to need a very healthy dose of this stuff, so if you've got a helper friend, keep the production line going.

Building up the 'light clay straw' insulation

To apply the straw to the dome, take armfuls and pat it directly against the cob dome. I'll admit, it's pretty tricky because straw is so springy. It may help to try to orient the straw like a ring around the dome, initially. You want to pack it as tightly as you can, since the insulation will be supporting a fairly thick (and heavy) layer of plaster. Do your best, and as you climb the dome, keep punching it down and match the curve of the dome, and maintain the same thickness of insulation as you go. I've found that using somewhat shorter straw (especially on the bottom-most layer) is easier to compress than very long straw fibers.

Completely insulated dome... very odd-looking, I'll admit

Halfway up, the oven will look like some kind of funky bird's nest, and when you're done the oven will have grown about double in size. It's kind of a humorous sight. If you've done well, your insulation will be consistently packed tight, and match the dome shape of the oven.

Preparing the Oven for Plaster

We're starting to hone in on the final product here -- now that your cob oven is insulated, it's time to think about plaster work. I always do two coats, not including an initial clay slip application. The first thing you'll want to do is apply a sticky clay slip to the entirety of the straw insulation. This clay slip will give the actual clay plaster layer something to adhere to.

Compared to the clay slip you just made for the light clay straw insulation, this mix will be thicker. It's still just clay and water, but you want a nice smear-able consistency — something you can pick up and hold on to, and smear smoothly on the dome. Think peanut butter texture.

Applying clay slip by hand... therapeutic, even

Just like before, grab your Hole Hawg and stir up some slaked clay, but add less water. Once it's ready to go, simply grab it by the handful and start applying it to the straw. It should go on in a smooth, consistent layer. We're not trying to build up any kind of thickness here, but merely provide a sticky surface for the plaster to come. A note about timing here, too: it's good to do this step immediately after you get the straw insulation on the oven. The sooner you contain things, the better. I particularly enjoy this step. Smearing raw clay feels really nice...

Base Coat of Plaster

Now that your oven is all slipped up, you can move immediately into plaster work. Again, it's not a bad idea to do this step right away. The base coat of plaster will help refine the shape of the dome, and provide a smooth, even surface for your finish coat. You can apply it by hand or with a wood float, but in either case you want to create a consistent surface. You may have to build up in some spots, depending on how lumpy or irregular the surface may be.

To mix a batch of base coat plaster, I actually use the same exact recipe for my cob mixes. The basic recipe is: 2 parts sand, 1 part soaked clay, and straw (not too much, and ideally chopped into 1-2" lengths). Actually, you'll want this plaster to be wetter than a typical cob mix, but you can decide just how wet to make it for yourself. It should be easy to work with.

Sorry, I never seem to want to pick up the camera during this phase — but note here the base plaster being applied from the bottom up, in a smooth layer

This base coat of plaster should be at least 1/2″ in thickness, and more than likely it will be thicker in some spots. Again, you want to plaster the entirety of the dome and really refine your form. If you're clay slip undercoat is fresh, you shouldn't have to pre-wet the surface at all. Start at the bottom of the dome and work your way up. If you want to do any decorative surface work like sculpting, this would be the time to start incorporating that stuff. I'm personally more of a fan of the plain and clean look, so I never fuss with anything too fancy. Either way, this is fun stuff, so savor it!

A fire helps dry this oven out in a shady location — note the cracks in the base coat, indicating the oven is almost dry

At this point, it's highly advisable to let things dry out completely before you proceed with your finish plaster. Again, if your location is very shady, it's a good idea to build a small fire to speed that process along. You definitely don't want your straw insulation layer to start decaying under all of that mud.

Applying Finish Plaster

Can you smell those pizzas? It's almost time to invite your friends over. Actually, if you're impatient, there's no reason you can't begin using your oven now that the base coat of plaster is applied, and everything is dried out. The finish is merely decorative. But the oven is far more beautiful with a smooth finish coat.

Applying finish clay plaster with a Japanese plaster trowel

This is the last major step of your new outdoor oven construction. There's about a million ways to finish things out here, including different plaster recipes and clay paints, or a custom mosaic installation. (Actually, if you want to use colored glass or other material to make a mosaic on the surface of the oven, you need to have all of that stuff ready to go so you can push it into the freshly applied plaster.) Again, I tent to opt for simple and clean. Let's start with how to make your finish clay plaster.

Please refer to my recipe for preparing and mixing finish clay plaster. You'll need sifted sand, screened clay, fresh cow manure, and possibly some cattails and wheat paste.

With your materials fully prepared and mixed, you're ready to go. Thoroughly pre-wet the surface of the oven before you apply your plaster. Try to put it on as thin as you reasonably can, and consistent all over the surface. 1/4″ or less is best. A good quality plaster trowel will help to make a shiny

smooth coat. Please read here for tips on selecting a trowel for your needs. I can't get into all of the minute details for proper plaster application here, but again… aim for a consistent, smooth surface. If you're going to embed mosaic materials, do it as soon as humanly possible. Always make sure the undercoat is wet enough so the finish coat can properly adhere. Burnish your work with a flexible steel trowel or a yogurt lid once it has set up. Or use a sponge to bring out some of the grain.

Stand back and admire your finished oven! Thanks to the very thick layer of insulation you recently put in, you should not experience any cracking from heat in your finish plaster layer. Any cracks that do appear will be from your mix or your technique. No worries, though. Everyone will be much more interested in your pizza than any imperfections in the finish.

Party Time!

Congratulations! You now have a finished outdoor pizza oven. It's time to throw a party and celebrate. Eventually, I'd like to write about best practices when firing your oven and how to make delicious pizza, but that will have to wait a little while. This should be plenty of information to get you going for now!

One final word: yum.

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http://www.theyearofmud.com

EXTRA: How to Mix a Batch of Cob

Cob is the simple combination of sand, clay, straw, and water. The proportions of these ingredients will greatly affect the strength, sculptability, and ease of use of this timeless natural building material. Depending on where you live, and the type of sand and clay you have access to, you may end up altering this "base recipe" for the perfect batch of cob.

2 Parts Sand

The sand you should look for is coarse and "sharp" as some building suppliers will refer to it. What you're after is sand that has a rough texture, not smooth and rounded like beach sand. The sand should "grab" the clay and incorporate easily, and a range of particle sizes is important, too. Fill up a wheelbarrow a few inches shy of the top for a manageable amount to mix.

1 Part Clay

Clay will be different depending on where you dig it up. To determine if you have a good quality clay, use this test to see if the subsoil you've sourced has a good clay content. Don't confuse silt for clay — it needs to be sticky stuff. You don't need totally, 100% pure clay here — as long as the subsoil is *mostly* clay, you're good to go. Optional: slake (soak) the clay in buckets or barrels overnight to let it absorb water and make it easier to mix. 2 1/2 to 3 full five gallon buckets of clay is typically what I use per one wheelbarrow of sand.

Some Straw

I don't typically measure straw in any particular fashion. Straw is strictly "to taste", and can be varied depending on what application you're using the cob for. Though more often than not, you'll want a fairly rich addition of straw — enough that each handful of cob has long strands running through it, but not so much that the cob is difficult to work with. Sprinkle it in bit by bit. And don't forget — straw should be absolutely dry, and free of mold and decay! Straw from wheat, rice, oats, or other common grains are all acceptable.

Water

If you slake your clay as I mention above, you may want to pour off any excess water before dumping the clay into your pile of sand. It's much easier to add water than to take away. The cob should never be difficult to mix... it will take a bit of time, probably 10-15 minutes of stomping with some experience, and the clay and sand should incorporate easily. If it's not, add some water a bit at a time.

Mixing Cob: Step By Step

- Lay out a recycled lumber tarp (at least 6'x8'). Load up your wheelbarrow of sand, and dump it in the middle of the tarp. Use your hands to carve out a small depression in the middle of the pile.
- Pour off the water from 3 buckets of clay, and dump the clay into the sand pile. Remove your shoes, and get stompin'.
- Every minute or so, use the edge of the tarp to pull and roll the material to more quickly incorporate the sand and clay. Add water if necessary.
- Once the sand and clay retain its shape as you roll the tarp (forming the classic "burrito"), it's time to add straw. (If the pile slumps over instead, you've added too much water.)

Shake up and loosen fresh straw, and sprinkle the top of the pile. Stomp it in, and add more as necessary.

- Once you're done, roll the tarp one last time and get ready to cob!

My favorite mix of cob is sticky and sculptable, and should form easily into a "loaf" out of the pile. The straw should be evenly dispersed, and relatively abundant in the pile. If the cob feels too sandy, well… add more clay next time. If it's too sticky, more sand. Too dry? You guessed it… more water. This is not rocket science, and getting your hands (and feet) in the material is the best way of determining if you've got the perfect batch of cob. Have fun!