How To Build A Smoke House
# Table of contents

Smoking meat – A traditional food preserving method ......................................................... 3
Cold smoking vs hot smoking ............................................................................................... 3
Cold smokehouse building .................................................................................................. 6
  List of materials .................................................................................................................. 6
  Building instructions ......................................................................................................... 6
  Dry cures ............................................................................................................................ 10
Hot smokehouse building ................................................................................................... 12
  Building Instructions ......................................................................................................... 12
Delicious recipes .................................................................................................................. 17
Smokehouse – A traditional food preserving method

Before refrigeration people relied on salt and smoke to preserve their meat. Most people lived on family farms and the "smoke house" was as familiar as the outhouse.

Refrigeration changed the way we did a lot of things, but one thing it did not change was our taste for the flavor of smoked meat. Consequently, smokers are readily available today and recipes abound, including those for smoking your meat in your backyard grill.

Smoking the meat is not an absolute necessity, a lot of people prefer it—not only because the smoke imparts a nice flavor to the meat, but more importantly because the smoke is a natural preservative.

Cold smoking vs hot smoking

Cold smoking and hot smoking are two different methods for handling meat after it has been butchered. The big difference between cold smoking and hot smoking is that one method involves heat, while the other does not.

Both will impart flavor to the meat, but hot smoking also cures it, creating a shelf-stable meat which can be stored in more varied conditions than cold smoked meat. In addition to cold smoking and hot smoking, meats can also be cured through brining, salting, wind drying, and combinations of these techniques.
When meat is hot smoked, it is enclosed in a smoker along with a fire or pit of coals. Aromatic woods such as cedar, hickory, or apple, among others, are added to the fire so that they will generate strongly scented, flavorful smoke. The heat from the fire or coals cooks the meat, curing it so that it is less likely to decay, while the smoke penetrates the meat, infusing it with a rich flavor. It is not uncommon to marinate or brine meats before hot smoking them, to add flavors like honey or sugar.

When meat is subjected to cold smoking, it is also hung in a smoker, but the smoke is generated in a separate chamber and the temperature is kept much lower, typically a little warmer than ambient room temperature.

The cold smoking process can take days or weeks, as the smoke slowly penetrates the meat without heat. Since cold smoking does not cure meats, they are usually salted or brined before being cold smoked. The salt cure ensures that the meat will stay bacteria free.

Cold smoked meats tend to taste very salty, and their texture varies, depending on how long the meats are smoked. Lightly smoked meats such as lox will have an almost raw, meaty texture, for example.

Many cold smoked foods such as bacon need to be cooked before they can be eaten, to ensure that no bacteria is present. Sausages and ham are often hot smoked, so that they are ready to eat right out of the smoker.
In some cases, cold smoking may be combined with wind drying. This is accomplished by hanging meat to dry while also keeping a low level fire burning so that the meat is smudged with smoke as it cures. Wind dried foods like jerky and biltong can keep very well, since the wind drying removes much of the risk of bacterial contamination. These meats can also be eaten without cooking, as the curing process has essentially cooked them, albeit very slowly.

Probably the most important thing to remember when contrasting cold smoking and hot smoking is that hot smoked foods are generally safe as is, while cold smoked foods may be at risk of contamination.

These foods should be kept under refrigeration to ensure that they stay edible. Since the techniques for cold smoking and hot smoking are slightly different, they also require different cooking skills, and cooks should approach cold smoking with care, as it is easy to contaminate food.
Cold smokehouse building

List of materials

2 pressure-treated 4"x4"x14' (cedar, locust, or other rot-resistant wood can be substituted).
2 pressure-treated 4" x4"x 12'
5 2"x4"x10' lumber 18 - 2"x4"x8' lumber 3 - 2"x4"x12' lumber
7 - 4'x8' sheets of 3/8" plywood or OSB board 1 - 4'x8' sheet of 3/4" plywood or OSB board
1 roll of metal roof flashing
1 square worth of roofing material
18 4-foot long pieces of 3/4" iron gas pipe or other sturdy pipe 2 - T or strap type hinges
20 feet of 1"x 2" lumber
several yards of heavy gauge wire
10 or 12 feet of 24-inch wide window screen
10 or 12 feet of 24-inch wide expanded metal lathe 12d and 7d nails, and roofing nails

Building instructions

Once you’ve selected a site to erect your smokehouse (the top of a slope is ideal), begin by making corner cut-outs in your sheet of ¾-inch plywood. As an aid in marking out where to dig the holes for setting the building’s corner posts, lay this plywood flat on the ground. You’ll then need to use a post hole digger to sink holes deeper than your local frost line (three feet in our area).
Next, you’ll need to use a level to keep each corner post plumb as you tamp the dirt solidly back in place around them. Then measure down exactly 8 feet from the top of the tallest posts, and again use your level to keep everything “true” as you install the floor joists and ¾-inch plywood flooring.
Now, nail the wall studs and roof rafters in place, then cover the exterior of the walls and roof with the 3/8-inch plywood, making certain to provide a doorway. Use the 1"x2" lumber to fashion braces for the section of plywood removed for the doorway. Use the hinges to hang this in place as a door. A lock and hasp, a simple barrel bolt, a large hook and eye, or anything similar can be used to keep the door shut.

Install whatever sort of roofing material you prefer. To prevent rodents and other animal pests from climbing up and gnawing their way into your smokehouse, you’ll need to cover the exposed portions of your four corner posts from the ground to the floor joists with metal flashing. The smooth surface of the flashing prevents rats, cats, and other creatures from getting any sort of a hold to climb up.

At this point, you’ll want to brush on a couple of coats of non-toxic exterior paint, both inside and outside of your smokehouse. For the interior use a glossy white latex exterior paint. It makes scrubbing down the smokehouse interior after each use just a little easier. Instead of using wood to fill in the spaces between the rafters, use fine window screen and metal lathe to cover each of these spaces.

This will allow the smoke to slowly escape, which prevents imparting a stale, flat taste to your foods. Notch 12 pieces of 2"x4" and nail them in place along the long sides of the shed. These will support the lengths of pipe from which you will hang your food. When larger pieces of meat are to be smoked, extra support is added with heavy gauge wire suspended from the rafters.
All that remains to be done before putting your new smokehouse into use is to provide a means of keeping the building filled with smoke. The only things you need for this method are a 55-gallon metal drum, some 6-inch stove pipe, one short section of 6-inch triple wall pipe to go through the floor, and an old three-pound or larger coffee can.

When you’re ready to use this stove to provide smoke for the food in your smokehouse, you’ll need to build up a hot fire of hardwood, such as hickory, oak, or ash, and allow this fire to burn down until the bottom of the barrel is filled with hot glowing coals.

Once the coals are ready, shovel dampened hardwood sawdust, ground corn cobs, shredded hickory bark, or something similar over them. Keep shoveling in more of this damp (not wet) material every hour or two, as needed. It wouldn’t hurt to add a small outdoor thermometer inside the door of your smokehouse, because once the original large fire has burned down, you’ll never want the inside temperature to exceed 100 degrees F.

While you do need to stick with hardwoods for smoking foods, to avoid a nasty taste, it is recommended that you do some experimenting on your own with different species of sawdust, wood chips, ground-up corn cobs, and such to determine the flavors you personally prefer. Some meats, such as thinner cuts of lean beef and venison, will not only have their flavors greatly enhanced, but their storage lives extended remarkably by smoking.

Many other foods, especially fatty meats like pork, most fish, and many sorts of fowl, require some type of curing (usually employing
salt, sugar, syrup, or some combination of these) before the meat is smoked, or its keeping qualities won’t be much improved, if at all.

**Dry cures**

**Hams, shoulders and bacon**

For each hundred pounds of meat, mix together 2 pounds of dark brown sugar, 8 pounds of pickling salt, 2 ounces each of black and red pepper, 2 ounces of saltpeter (optional), and 1 ounce of crushed cloves. Dampen the meat well with fresh water and rub this mixture well into all sides of the meat.

Place a layer of pickling salt in the bottom of a wooden or plastic barrel, then place pieces of meat on top of this layer of salt. Cover this meat with a thin layer of salt. Continue alternating layers of salt and meat until the container is full or the meat is gone. Make certain to finish with a layer of salt on top.

Every six or seven days, the barrel should be unpacked, the pieces of meat rubbed again with the salt/sugar spice mixture, and then repacked using the same salt. Using the largest piece of meat as a guide, leave the meat packed in the pickling salt for three days per pound.

At the end of the curing time, wash the meat thoroughly and hang it to dry inside the smokehouse (without using any fire or smoke) for 24 hours. Then build up the fire, and keep the smokehouse filled with dense smoke for 12 days. After smoking, wrap the meat in a
How To Build A Smoke House

double layer of cheesecloth, then in brown butcher’s paper, and hang in a cool dark place to “age” for at least 3 months before using.

**Beef, venison, and other red meats**
Entire shoulders, whole rib or round cuts, or whole briskets, can be boned for this sort of use.
Refrigerate the meat for at least 24 hours before starting to cure.
Use approximately 5 pounds of pickling salt and 2 ounces of saltpeter (optional, but without the saltpeter, your meat won’t retain a fresh reddish color), per 100 pounds of meat. Place a thin layer of this mixture in the bottom of a wooden or plastic barrel, then add a layer of meat.

Cover the meat with this mixture, then sprinkle on black pepper and garlic powder liberally. Add another layer of meat, treating it in the same manner. Keep alternating layers until the barrel is full, or all of the meat has been used up. After 24 hours, weigh the meat down with a wooden lid with a couple of scrubbed, heavy rocks on top.

After 60 days, remove the meat and dry each piece separately. Rub each piece heavily with a mixture of 6 parts black pepper, 5 parts coriander, 3 parts allspice, 1 part white or red pepper, and 1 part garlic powder. Refrigerate overnight.

Hang the meat inside of the “unlit” smokehouse to dry—and “set up” a little—for 24 hours before smoking. Then keep the smokehouse filled with very dense smoke for 12 days. Wrap with a double layer of cheesecloth, then a layer of butcher’s paper, and hang to “age” for a couple of months before using. Once aged, roasted, and thinly
sliced, venison cured and smoked in this manner tastes remarkably like deli-store pastrami.

Many other foods aside from meats can have their flavors enhanced by leaving them inside of your smokehouse for a few days. Most cheeses, especially cheddar, can be placed inside of bags made up of cheesecloth and hung inside the smokehouse for from 2 to 4 days. For a real taste treat, pecans, almonds, cashews, hickory nuts, and many other nuts can be roasted in vegetable oil, then hung in the smokehouse to absorb the extra flavor for a day or two.

Possibly the best-tasting homemade chili powder is prepared from dried red peppers which had hung in the smokehouse for about 3 days before being ground into a flour-fine powder.

If you’re interested in preserving some of your own meats, fish, game, fowl, and other foods at home, while allowing yourself a real taste treat, then building and using your own family-sized smokehouse is exactly what you’re looking for.

**Hot smokehouse building**

**Building Instructions**

**Step 1: Cut the sides of the smokehouse**

We recommend tongue-in-groove pine because it is easy to work with and cost effective. Where needed, the tongue on the outside edge of walls can be removed with a utility knife. Do NOT use
pressure-treated lumber, since smoke that comes in contact it will contact your food.

Fit and clamp together 5 boards, with the edge groove facing front and the tongue (removed) facing the back. Measure the front height to be 6', and the back 5'9". Snap a chalk line between measurements to make an angled top line. Cut with a circular saw. Repeat in mirror image for the other side.

**Step 2: Frame the top and bottom of the side pieces**

Using a table saw, rip 2"x8"x8' boards to create 1 1/2" x 1 1/2" framing pieces. Cut one to 25 3/4" in length and fasten along the inside bottom edge using galvanized deck screws. Cut another framing piece to fit the sloping top, with angles cut to make the front and back facing pieces flush. Repeat in mirror image for the other side.

**Step 3: Frame the back of the side pieces**

Fasten an additional 1 1/2" x 1 1/2" framing piece along the back edge of each side panel, between the top and bottom framing pieces. This is where the back wall will be attached. Repeat in mirror image on the other side. Now you should have two identical side pieces that are a mirror image of each other.
Step 4: Construct the back and fit to sides

Construct the back wall panel just as you did the side panels, but with all 5 boards cut to 5'9" in length. Fasten 21 1/4" framing lumber to the top and bottom of the inside back wall. Stand the sides and back together on a flat surface. The back should fit within the framing pieces of the side walls.

Step 5: Square it up

Measure to make sure the front portion of the smokehouse is square. Fasten 2"x4" cross braces to the front of the two side panels. Notch brace ends to accommodate the ends of the top and bottom framing pieces of the side panels.

Step 6: Finish the front

Rip 1"x6" pieces of pine board to be 3 1/8" wide for dressing the 2"x4" cross braces on the top and bottom. Position these pieces flush with the top and bottom brace edges, leaving about 1/2" of the top and bottom cross braces exposed, to serve as a door stop.
Step 7: Install shelf supports

Cut 8 shelf supports from the 1 1/2" x 1 1/2" board to length, and fasten four to the inside walls of each side panel, at the exact same heights. Check to be sure they are level. Here, the top of the first support was placed 18" above the floor, and the remaining supports were located with their top edges 14" above the support below.

Step 8: Build your door

Construct the smokehouse door from the remaining 5 pieces of pine, and cut to length so the door will fit snugly between the top and bottom pine pieces on the front.

Fasten the door together using 1" thick boards in a "Z" formation, leaving room along the edges for the door to close completely. Fasten the door to the smokehouse using two 4" strap hinges.

Step 9: Add the roof and shelves
You can use a variety of materials for the smokehouse roof. Here, a piece of sheet steel was fastened to the top edges with screw, leaving a gap about the thickness of a popsicle stick between the sides and roof for venting.

Do not use galvanized metal. For these shelves, the builders used expanded steel reinforced with angle pieces around the perimeter. Be sure to clean steel pieces before placing food on them.

**Step 10: Consider the draft**

In order for your smokehouse to work properly, air must be able to draft in from the bottom and exit the top. Controlling this determines the heat build-up and degree of smoke in the house. We placed our smokehouse on a small stone foundation that provided space for air to draft in the bottom. We drilled a couple of 2” diameter holes near the top of each side and just under the roof.

If the base of your smokehouse is tight to the foundation or sits on a
17

How To Build A Smoke House

gravel pad, drill two 2"-diameter holes near the base of each side. To further control draft, you can install galvanized steel electric junction box covers to cover the holes and act as dampers, adjusting accordingly. Screen ventilation holes in the inside to keep pests from entering the smokehouse. If desired, drill small holes into the sides to accommodate stem thermometers.

Step 11: Fuel your smokehouse

We purchased a single-burner liquid propane system. This type of heat source, they believe, makes it easier to regulate temperature than external stove-like systems. The propane tank is set outside the house, with the burner inside. We placed an old cast-iron pan on the burner, and filled it with hardwood chips and sawdust to produce smoke. We recommend apple, hickory, or alder wood.

Delicious recipes

Smoked Bacon

Rub down a slab of fresh bacon (pork belly) with a liberal quantity of the Tender Quick. You can’t really use too much but a cup or so should do. Then follow with a thorough rub of brown sugar (again,
start with a cup or so). Then place the meat in heavy plastic and allow to cure for 7 days at 38F. I use a small refrigerator for this. I run a remote temperature probe inside and monitor the temperature, tweaking the thermostat when necessary.

The temperature is important; too low (below 36F) and the curing action will cease, too high (above 40F) and the meat will begin to spoil. I also cut the pork belly in two and cure it with the meat surfaces face to face and the skin on the outside. It helps it fit in the fridge and improves the curing action.

I then smoke it at 140-150F until the internal temperature of the pork reaches 128F (about 8 to 10 hours). I find it best to remove the skin about 3/4 of the way through the smoking process. This way the fat is protected but still acquires some color. Chill overnight before using. Slice into approximately 3/16" thick and fry as usual.

If you are using Prague Powder #1, mix 2 oz with 1 lb of salt and use like the Tender Quick. Other sugars can be used instead of brown sugar. Try honey or even some maple syrup.

**Smoked pastrami**

For best results, use trimmed briskets. Start with a curing brine. This recipe makes enough for 25 lbs of meat.

- 5 quarts ice water (about 38-40F)
- 8 oz. Salt
- 5 oz. Prague Powder #1
How To Build A Smoke House

5 oz. powdered dextrose
1 Tbsp garlic juice
Prepare and cure as for corned beef. After curing, remove from brine and rub liberally with cracked black pepper and coriander seeds. Smoke at 140F until the meat is dry and then increase smoker temperature to 200-220F and hold until internal temperature of meat reaches 170-180F. Chill overnight before using. This meat is fully cooked.

Andouille sausage

Andouille is a spicy smoked sausage common in Louisiana cooking. It is easy to make at home.
2 tsp garlic powder
2 Tbsp sugar
2 Tbsp kosher salt
1 tsp Prague powder #11
Tbl ground black pepper
5 lbs pork, fat and lean separated
1 tsp red pepper flakes
3/4 cup cold water
2 tsp cayenne
1/2 cup soy protein concentrate
3 Tbsp paprika
1/2 tsp ground mace
1 tsp thyme
Wide hog casings
Grind the fat through a 1/4 inch plate. Grind lean meat through 1/2 inch plate. Dissolve Prague powder in water to ensure
even distribution. Mix all ingredients, except casings, well. Stuff into casings and twist at 12 inch intervals to form links. Hang sausages in front of a fan in a cool place overnight to dry. Smoke at less than 140F for 6 to 8 hours. Refrigerate until firm. Freezes well.

**Smoked salmon**

Start with boneless sides (filets) of fresh salmon. Place the sides in a tub of saturated salt solution and add ice to chill. This removes diffused blood, makes the flesh firmer and helps retain oils. The fish should remain in this brine for 60-90 minutes. The sides should be drained for 15-20 minutes. A shallow vessel is filled with a salting mixture prepared as follows (for 20 lbs of fish):

2 lbs salt
1 oz brown sugar
1 oz Prague Powder #11
1 oz white pepper
1 oz ground bay leaves
1 oz ground allspice
1 oz ground cloves
1 oz ground mace

Dredge the sides in the mixture and rub it into the flesh lightly. Pack the sides into a tub with as much curing mixture as will cling to them. Cover loosely and apply weight. Leave fish for 8 to 12 hours then remove and scrub and rinse to remove excess salting mixture.

Fix sides on a hanger and allow to dry in front of a fan for 4 to 6 hours. Hang in smoker and smoke for 8 hours at not more than 100F. Continue to smoke for 24 to 48 hours at 70F. Brush with oil and store in a cool, dry place.