HOW TO MAKE A BEDSHEET TENT

By Oliver Cameron
with Ole Wik

I've used two types of temporary shelters. I've described a lean-to elsewhere. I also made a tent out of bedsheets.

Ole Wik and son Kalle at overnight camp along the Kobuk River, spring of 1975. Bedsheet tent and image by Sasha Wik

Material:

The quality of the sheets will depend on the season of use. The best sheets to use for a winter tent are the 50/50 cotton and polyester percale. They're woven a little tighter, and hold air in better. The cheaper grade sheets that come on sale in January are about 1/3 cotton and rest polyester. They're not so tightly woven, but they're strong and are alright for summer use.

If you're living in the tent while you're building a permanent dwelling, the cheaper ones might be fine. Sheets that are mostly polyester are lighter than cotton, and have a smaller thread count. Their lighter weight could make a difference when you're backpacking.

The way I set those tents up, I have a plastic tarp for use as a fly, so I don't have to worry about waterproofing.

If you use full size flat sheets, you'll need three for the top and sides, and one more for each end. Of course you'll need a good quality mosquito bar as well.

It's kind of hard to explain how I make those tents, but here goes.[1,2]

Cutting out the panels for the back wall:

If the center of the tent is about six feet high, you would measure up 6' along one short edge of the sheet. Drop down at a 45-degree angle until you've gone 3-1/2' across the sheet, and then go down vertically to the bottom. This outlines one half of the wall. Repeat the same operation as a mirror image along the other short edge of the sheet.

Making loops and ties:

Take the scrap that is left over from cutting out the end. It will have a longer side and a shorter side. Cut a strip 2" wide from the longer side, fold it twice so that the raw edges are in the middle, fold again, and sew together. That will give you a half-inch strip for loops and ties.

Assembling the back wall:

Sew the length of the two pieces together along the longer edges. Put the material together in such a way that you have a peak at the center of the roof, with the seam up the middle. Sew back from the edge a little ways, and then fold it twice. You will have a raw edge folded over flat down against the material, like the seam on the side of the leg of a pair of jeans.

As you do that, sew two lengths of your folded tie material into that seam, along the height of the wall. Let the ends stick out of the side that will face outward. They will tie to the vertical pole that holds up the ridge pole, and will keep the wind from bowing the tent back in. You can put them a little toward the bottom, as the top will be secured already.

Making the roof/side panels:

Cut one sheet in half lengthwise, and sew it onto the long edge of one of the other sheets. Fold the cloth over to make a strong seam, with four layers of material. Then fold the full sheet over in the middle to make an artificial seam running the same way.

These seams will run from the ground up to the ridge pole. The additional seam is for guying out the tent at the eaves.

Make a hem in the material that will lie along the ridge. Come down 1-1/4" at the top, fold the material on the outside, and tuck it under.

This gives you one side wall and one half of the roof. Repeat this whole process for the other side of the tent.

Assembling the roof and sides:

The next step is to sew the two one-and-a-half sheet panels together along the edges where you sewed those hems. This seam will lie along the ridge pole. The material can come down about five feet from the ridge to the eaves of the tent. Depending on the size of the sheets you use, this will leave about 30" for the side walls.

As you sew the panels together, insert loops at the beginning, at both of the existing seams, and at the end. Do this by inserting the strips of your loop material into this new seam in such a way that the loops stick down 1-1/2" on the inside of the tent, with the two free ends sticking up on the outside.

The free ends will be used to suspend the ridge of the tent from the ridge pole. Leave one of them 3" or so longer than the other, so that when you tie them together, the knot will be on the side of the ridge pole—not on the top, where it would interfere with the fly.

Run over the ridge seam several times, so that it will be plenty strong. Then make a second pass along the very edge of the material, to keep water out.

Cutting out the panels for the front wall:

Cut out the panels for the front wall in much the same way as you did for the back wall, but allow for an overlap of several inches, say six, for the flaps at the opening. When you cut out the two halves, there will be extra material on one side.

Sewing in the back wall:

When you go to sew the back wall in, lay the back in place, with the 45-degree angle parts along the roof. Line up the edges and sew back in a ways, say half an inch. Sew only as far as the corner where the eave will be. Fold the material over, rolling the roof material over the back wall material, and sew again.

Since the angle at the top of the back panel was cut on the bias, it will want to pull out of shape, making it very hard to keep that length as you sew. Here's a trick: Put a row of masking tape on each side of your cut. That will counteract the tendency of the material to stretch out of shape.

Sewing in the front wall:

You do something similar when you sew the front in, except that you have to provide for the doorway. You don't sew the long sides of the front panels together, except for a little piece at the top.

You also have to take account of the flap of material that you allowed for an overlap on one half. The purpose of the flap is to keep the darned bugs out. To make it more effective, you sew a separate strip of material on the inside of the tent along the edge opposite the flap, forming a pocket. There is usually enough material left over from cutting out the front panels to provide that strip of cloth.

The pocket is deep enough for the flap to slip into, like slipping a letter into an envelope. Leave gaps in this seam for ties that you will sew to the edge of the flap.

When you want to secure the door, you run the ties through those gaps, pull on them to draw the flap into the pocket, and tie them to matching ties that you've sewn on the inside of the tent. Of course you don't want the ties secured if you think you might need to get out of the tent in a hurry.

Making the eaves:

When you have the roof sewn to the sloping parts on both sides of both ends, you're ready to sew the eaves. You do that by doubling your material together and sewing a 1 or 1-1/4" hem that sticks out like the eave of a house. The wall hangs from the hem.

Cut pieces of your tie material, maybe 5" long[3], for circular loops to fasten guy ropes to. Sew them on the underside of the eave, at both ends and at the two reinforcing seams in the middle. They can be offset a little bit from the inside loops.

Use your imagination for the final seams, which are the corners of the walls.

Sod flaps:

The sides of the tent should be high enough that you can use them for a sod flap. If you're in a hurry and your setup is temporary, you can just pull the flaps inside and lay something on them--sticks of wood or a bag or whatever.

Over time, the flaps will rot out, so you can also sew something else on at the bottom of the walls, like canvas. For a more permanent setup, you may want to put them on the outside, and put on dirt or rocks or whatever to seal up the bottom pretty tight.

If you want to use tent stakes, you can sew loops into the seams, one at each corner and one at each mid seam. You might want to do that if it is really windy.[4,5]

Windows:

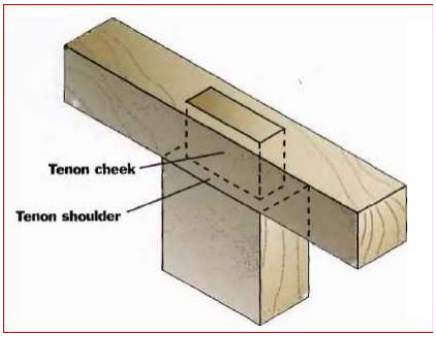
I don't worry about windows. I never go out without a dog or two, and they tell me a lot about what is going on. But you can use clear vinyl, which is flexible and will roll up with the tent.

Tent poles and guy lines:

When I traveled, either by dogsled or by boat, I carried a set of poles for that tent. The ridge pole was just the length of the tent, plus maybe 6" on each end.

I chiseled little mortise holes in the bottom side of the ridge pole, placed so that they were right at the ends of the tent at each end. The uprights that hold up the end of the ridge pole each had tenon on the upper end that fit up into the ridge. They didn't go all the way through, so the ridge was smooth on top.

I set up the uprights so that they fit into those sockets, and tied everything to them.



Example of a mortise (hole) and tenon. Oliver's ridge pole was round.
Image source:
http://www.woodworkingarchive.info/skills-techniques/how-to-make-handcut-dovetail-joints.html

When I was setting up the tent for just one night, I wouldn't shovel the snow out first. That takes too much work.

To keep the uprights from driving all the way down through the snow to the ground, I drilled holes through them, about 3" up from the bottom ends, and put pins through them

crosswise. Then I'd put little sticks or branches with forks in them down on the snow, like snowshoes. I'd then rest the ends of the upright in the crotches, with the pins supporting them.

Later on I went to a different system. I rounded off the lower ends of the uprights and made wooden shoes that had sockets for them. They were maybe 3 or 4" wide, a little longer than that, and kind of thin—maybe ¾" thick at the center and tapering in all directions. I carried those with me. I also guyed the uprights fore and aft.

The tent guyed the system sideways. There were four guys on each side—one at each corner, and two along the reinforced seams in between. At the ends of the lines I attached thin pieces of wood that looked like big buttons, maybe 4" in diameter, with two buttonholes.

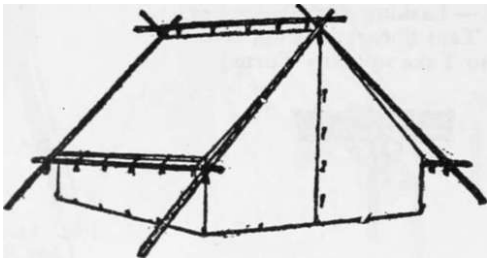
I think I used birch, with the grain of the wood running perpendicular to the line of the holes. The guy rope went in one hole and wrapped around the wood in such a way that it wouldn't pull the eye out.

The snow might be 3' deep before I started to set up the tent. I'd only pack down an area big enough for the footprint of the tent with my snowshoes. The snow would still be soft enough that I could just step on those buttons and push them down into the snow. They gave enough purchase that they could hold the sides of the tent out.

In that situation I had a special fly that was supported by the ridge pole. It stuck out a few inches past the sides of the tent, and ended before it got to the stovepipe. It protected the main part of the tent from falling snow that might melt on it, and against the possibility of rain during a January thaw.

When I set up a tent more or less permanently, I had a different setup. I used shear poles at the front and back.

A shear pole consists of a couple of crossed poles, like an A frame. I attached the ridge pole in the little "V" where the poles crossed at the top. On each side, I tied the eave and the fly to a horizontal pole that rode on the shear poles, a little lower than the eave. I tied the horizontals down to stakes, or to the shear poles.



Shear pole system for guying a tent in a permanent setup.
Image source: http://bookdome.com/outdoors/Camping-Woodcraft/Tint-On-Shears.html

The shear poles should have a wide stance, and can be a little bit ahead of the tent. You soon learn to duck under.

You can make your ridge pole longer than tent, so that you can extend a fly a couple of feet behind, and as far ahead as you want for a porch.

A shear pole system makes a permanent setup that you can use year after year. It's ideal for a visitor tent, and goes up in less than half an hour. Any time you want to set up the tent, the frame is already right there. You just tie the tent up to the ridge, to the uprights at the end, and to the eave poles.

Stove:

I go in and out of the tent through the left side, facing out. I put my stove just inside the door on the right side. To keep the fabric from flapping loose and touching the stove or stovepipe, I have some ties that secure the front of the tent permanently to the vertical pole on that side.

To make a shield to protect the walls near the stove, you can put layers of aluminum foil on a couple of sticks to deflect the heat, or use galvanized sheet steel from any sheet metal or heating and air conditioning shop. That way the stove can be within a foot of the wall. Otherwise it has to be farther away. You can also use a layer of aluminum sheets from the printing office.[6]

Stove safety:

It's a good idea to set the stove up inside the tent and see where the stovepipe it hits, so as to determine the location of the safety.

To make a stove safety, I used to take a piece of a lightweight aluminum sheet (or a cookie sheet or something similar) and I punched holes every half-inch or so around the edges, for sewing it into roof. I cut the hole in the middle elliptically to account for the angle, and made it a little smaller than needed so that I could lift flaps in the metal where it touched the stovepipe.[7]

Stove safety for the fly:

If you use a fly that extends over the front and back of the tent, you need to cut a hole in it for the stovepipe to give plenty of room so it won't be in danger of catching on fire. You also need to make a separate safety for it.

Those aluminum sheets are 18" wide or so. Bend about 8" of one end down at a right angle, so that it fits over the top of the ridge pole and lies on top of the fly.

Attach a fairly long piece of stovepipe, of larger diameter than your stove's pipe, so that it goes up through a hole in the metal sheet. You then have one stovepipe going up through another, and the outer one will be much cooler than the inner one. Make the hole the same way as you made the one for the tent safety--a little small, with the edges beaten up.

Put ties on the two lower corners. If your setup is temporary, tie them out to stakes or brush or whatever is out there. In a permanent camp, you can tie them to your framework.

Stovepipe:

I like to have the stovepipe come out of a corner of the stove. That gives me extra cooking area.

I usually let the stovepipe come up through the tent, then added an elbow and ran the stovepipe forward or to one side so that sparks wouldn't fall onto the fly or the tent. You can use another set of shear poles to support the horizontal pipe at the far end.

Visitor tent setup showing main shear pole, extended ridge pole, fly, stove safety, and second shear pole for stovepipe support. Image: Devta KhalsaI

You get a feel for what kind of fuel is going to make a lot of sparks, and you try to avoid them. Beginners can get in trouble with sparks when they use newspaper, cardboard, and so on.

My stove had double bottom. I designed it in such a way that I could put several joints of stovepipe inside. The rest went underneath, in a box-like situation that was fastened underneath the stove with rivets or sheet metal screws. The metal fastened onto the side of the stove, came down, went across, and came back up on other side.

I usually made a tent stove out of two five-gallon cans. I cut one end open on both, and crimped one a little bit so that it fit inside the other. The stove was then 5 or 6" shorter than the length of the two cans. A 2' joint of pipe would fit inside.

I generally used 4" stovepipe for a tent stove. Two joints would fit underneath that stove.

A tapered pipe also works OK. Each joint nests inside the next bigger one. I usually made my own. I crimped the ends of the pipes where they attached to the next.

I also made a backpacking stove out of a single five gallon can. I shortened the pipes to go inside the stove or the under area, for carrying on a pack board. Ordinarily when I was traveling with a sled or a boat, the pipe never came apart.

Inside arrangements:

The bed will take up three feet of the end of tent, for the full seven-foot width. If you have a bed frame, that will take some space. Make it high enough to sit on. For a temporary setup, it can be logs full or brush, topped off with boughs and/or caribou skins.

I generally have a grub box that sits against the wall of the tent on the right side, between the bed and the stove. I keep a few extra sticks of wood just inside tent door or whatever.

I don't usually have a floor in a tent, but a tarp or whatever will work.

Recall that there are loops on the inside the tent, right at the top, opposite the ties that fasten to the upright end poles and at the intermediate seams in the roof. I'd tie a rope of parachute cord (or a little heavier) into the front loop, run it through the intermediate loops to the loop at the back, and into the loop at the back. That kept the tent nicely stretched along the ridge pole, and served as a clothesline inside.[8]

Inside storage:

When you set up the tent, you can run a nicely whittled 1" diameter willow stick through the inside loops that you sewed at the top of the wall. You can pass the stick through a loop, through a bag that is hanging there, and then through another loop. If you want to, you can go the full length of the tent, and have bags hanging all the way along. They're very handy for keeping things sorted out.

I made the bags by folding a piece of material over and sewing it together to make a pocket. Then I made a wide hem that I could slide the stick through. I put the stick in place so that the ends were caught by the loops at the end of the tent. Sometimes I cut a little slot in the tent right at the eave, and just shoved the stick through from the outside.

When you have bags full of who-knows-what on the inside, they will be pulling the eaves down. I get around that by cutting a couple of forked sticks under the guy ropes on the outside, fairly close to the tent.

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1) This essay stems from a series of telephone conversations that Ole Wik had with Oliver between December 2007 and February 2008. Highlighted text indicates remarks made by Ole.

2) I suggest that as you design your tent, you draw the parts to scale, on graph paper. You might wish to experiment with different sizes of sheets. You might begin by studying the table at http://en.wikipedia.org/wiki/Bedding . You may find that you can use sheets of different sizes for the end panels than you use for the roof/sides. Always double check the dimensions of the sheets before you purchase them.

3) Unless I'm missing something, it seems that these loops have to stick inside the tent as well as outside, because they serve the purpose of suspending a stick for inside storage bags (as described farther along). The strip of material would then have to be longer than 5".

4) The loops would be placed at the bottom of the wall if you didn't want to fold them in for a sod flap. If you do want to make that fold, the stake loops would have to be some distance up from the bottom, where the fold would be.

5) As a tall person, I would definitely suggest using enough canvas at the bottom of the walls that you can both increase the wall height and add sod flaps. Note that if you omit the vertical seams at the corners of the sod flaps themselves, you would be able to fold the flaps either inside or outside the tent.

6) In those days, the Fairbanks Daily News-Miner used thin aluminum sheets in their printing process. Each was the size of one page of the paper, and you could read the text and see the photographs. That was before the advent of recycling programs, so they offered the metal sheets for sale. We'd buy bundles of them and use them for roofing on caches, or whatever.


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Example of aluminum press sheet (different newspaper).
Image source: http://www.mwv.stparchive.com/Archive/MWV/MWV07092010p20.php

7) In order to shed rain, let the half of the safety that is above the opening be inside the tent, and the lower half outside.

8) Clarification: The tent is suspended from the ridge pole by loops sewn into the seams, as described above. When the clothesline was tightened, it would tend to slide the loops at the ends of the tent toward one another, unless the ties were long enough to go over and across the ridge and then around the uprights that support it. The two intermediate loops along the underside of the ridge would keep the cord from sagging under the weight of the laundry.