

# VIKING TENT FRAME

by

Danr Bjornson

[Summary](#) \*

[Main Documentation](#) \*

[Materials and Process](#) \*

[Materials:](#) \*

[Process:](#) \*

[Sources](#) \*

## *Summary*

The ships that the Norse people used to travel to other lands were the best shipbuilding technology of their time. But when a large war party was out "viking" and the ship was crowded, sleeping aboard ship was not particularly comfortable. For that reason, the Vikings would beach their ship and sleep on shore whenever possible. For shelter on land, they fashioned tents from sailcloth and oars. It is believed that these crude tents gradually developed into the exterior-frame tent design seen in the Gokstad and Oseberg ships. My lady and I chose Norse personas, and when our budget allowed the purchase of a Viking pavilion from Panther™, I decided to design and build an authentic Viking tent frame.

My main source was [The Viking](#), by Bertil Almgren et. al. It includes a description and a drawing of the Oseberg tents that were sufficiently detailed for me to build the tent frame with reasonable accuracy. I used other sources to refine the design and for artistic inspiration.

The design was slow to develop. The drawing in the book did not show all the details, so I had to design some parts myself. While the dimensions of the pavilion's canvas are said to be accurate to the Oseberg tent, the frame directions that came with the pavilion were different enough from the historical design that I had to find some dimensions through experimentation. I designed the decorative animal heads in the same artistic style and technique as those of the Oseberg ship. I used locally available wood, doing the initial cuts with power tools and finishing the finer details and decorative carving with hand tools.

My lady Isabel assisted me with finishing the wood. I chose a clear satin polymer to preserve the look of bare wood and still make it weatherproof. The result looks realistic from more than a few feet. My lady also provided a second pair of hands and eyes in our experiments to find the most efficient setup procedure

I made a few mistakes and a few concessions to modern requirements. For example, I made the 14-foot sections of ridge and side poles so that they break down for easy transport. Because these are not visible when the tent is erected I used modern materials and techniques for the join. I also nearly tore the canvas when I attempted to erect the frame using a sequence suggested by the manufacturer. This procedure was suited for the manufacturer's frame design but not for mine, and the procedure given here is easy and effective for this frame design. I also made a few poor cuts, in which the power tool slipped off the line I was cutting, and I had to finish with hand tools for better precision.

## Main Documentation

Of the dozen or so books I own about the Norse people in the Viking age, including many archeological works, none go into much detail about woodworking. I continue to search for good secondary, or even primary, sources on Norse woodworking in the Viking age. Finding a historically accurate design for a tent was something of a challenge.

The "Vikings" book provides a brief description of a tent on page 262, and on page 273 is the drawing shown below. Unfortunately, the owner asked me to remove the image from the web, so I can only describe it. First, the carved animal-heads are quite noticeable (A). Next, one can estimate the end frames, which form the triangle shape, to be one to two inches thick and four to six inches wide (B). The ridge pole and side poles are round on the ends to pierce the end frames (C and D) and are held in place with pegs. What is not clearly visible is whether the ridge and side poles are round for their entire length or some other shape. We can just see something inside the tent (E) that might be a round side pole.

This is not a great deal of definite information, and without a photograph of the actual tent pieces I was not entirely comfortable with it. A round pole held by pegs on the outside might allow the end frame to slip inward if the tent were subjected to strong winds. An addition peg on the inside would prevent this but might pierce the tent fabric. The structure would not be very sturdy because the weight of the canvas would pull heavily down on the thin round poles. Therefore I sought additional information to help me solve these structural problems.

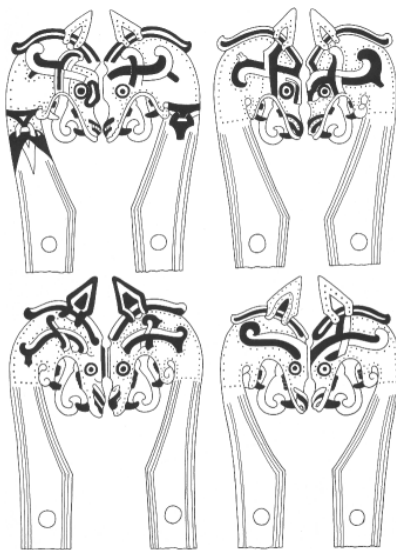
The round pole that pierces the end frame is similar to a mortise and tenon joint, except that in this case the tenon is round. This made a great deal of sense because, being round, it allows the tent to be assembled flat on the ground. Then the center can be lifted upward, with the join rotating around the round tenon, to erect the tent with ease. This idea is one from the drawing in the Almgren book that I knew I should keep as I refined the design.

The photo to the right from WOV (exhibit 5725) shows a reconstruction of the Oseberg bed. It shows two things of value to the tent project. First, it shows another application of the mortise and tenon, specifically a tenon which passed through a mortise and was secured on the back side with a peg. This is a simple means to construct furniture and other items that are meant to break down for transport, and supports the artist's drawing from Almgren. The mortise and tenon is very strong, partly because the tenon is smaller than the piece it protrudes from, and the rest of that surface area puts pressure on the piece it joins with, the piece with the mortise cut into it.



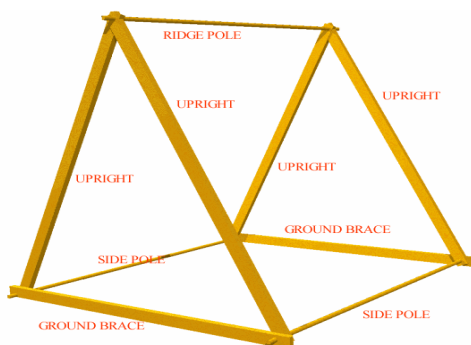
This concept, if properly applied to the problem of the tent, eliminates the need for a peg on the inside, as you will see in the Materials and Process section to come. The second thing the picture shows is carved animal heads. The two heads on the bed differ slightly, as if carved by different artists. This trend of a single object decorated with slightly different styles over its various parts can be found in many Norse archeological finds. The animal heads are generally considered to be of the Oseberg-Borre style of Norse art (Graham-Campbell, 98), the same as on the tent of that find. I would use this style of art, and the idea of different variations of artwork on one item, in the final design.

Documenting the art was a relatively simple matter. I have been attempting to learn the styles of Norse art for the past year. While I can identify one from another, I have not yet developed the ability to draw something from scratch in a particular style – my designs tend toward the Jelling style if I do not have a model from which to work. The Smith book was quite helpful, for it provided me with a good renditions of the Gokstad tent frame supports (page 6) shown here much reduced in size. The features of these animals, including ears, teeth, and the general shape of the heads, indicate that they are horses. The Smith book also showed me drawings of other Viking carvings of dogs and bears (page 25; not shown in this document), which would be of great help in designing the animal head carvings for my tent frame. It also helped me maintain the artistic style of the Gokstad tent frame.



Tent frame supports (Gokstad, Norway).

## Materials and Process



The drawing shows my names for the various parts of the tent frame and how they fit together. This will make it easier to understand the directions as well as to visualize to project as it progresses. The names and the drawing used here are my own invention, and the tent frame parts may have other names in other works.

### Materials:

For wood, I chose what was locally available. This included lumber of pine and dowels of poplar. The components needed for a "break-down" ridge and side poles are listed as optional.

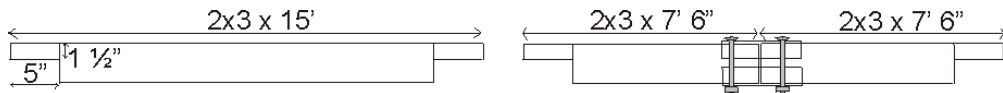
1. 6 each 2x4 x 12' (uprights and ground braces)
2. 3 each 2x3 x 16' (optional: replace with 6 each 2x3 x 8'; ridge pole and side poles)
3. 1 each 1x10 x 6' (animal heads)
4. optional: 4 each angle irons (I used galvanized stair tread supports; break-down sleeves)
5. optional: 6 each 3/8 x 5" carriage bolts with nuts and washers (to secure break-down poles)
6. finishing paint, stain, oil, or varnish (I chose a satin clear polymer)
7. 1 each 5/8 x 3' wooden dowel

Tools included a miter saw, band saw, jig saw, drill, hole saw, hand saw, draw knife, spokeshave, mallet, and an assortment of woodworking and woodcarving chisels, as well as the whetstones and strops to keep the knives and chisels sharp.

### Process:

The dimensions listed here are for a 10' wide by 14' long by 8' high tent. Some of the dimensions, such as the length of the ridge and side poles, came directly from the manufacturer of the canvas. The rest are from experimentation. The procedure shown will allow you to adjust the dimensions to fit your canvas.

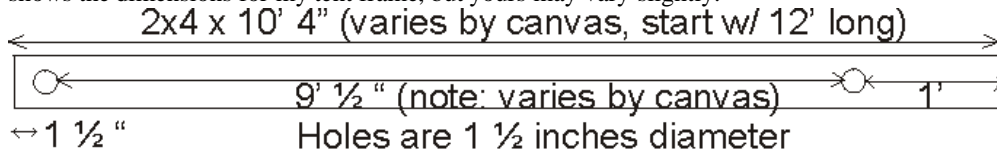
1. Measure the canvas and cut the ridge and side poles to length. Allow 5" on each end for the tenon. Cut the tenons with a saw, taking care to cut across the grain first to prevent binding of the saw when cutting with the grain. Using mallet and chisel, the drawknife, and/or the spokeshave, trim the tenon to a uniform 1 1/2 inches round, while maintaining a perpendicular end for the rest of the 2x3 cross-section. This edge will press



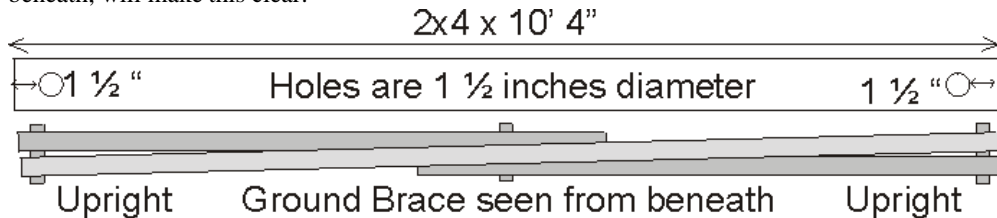
Angle iron and carriage bolts a sturdy

against the end frame to make structure. If the ridge and end poles are built to break down, attach the hardware and assemble them. Lay the canvas on the ground and slip all 3 poles into place.

2. Drill each upright with a 1 1/2 inch hole, 1' (on center) from one end. When all four are drilled, slip them onto the ends of the ridge pole and under the tenons of the side poles so that the side poles ride on top, bringing the canvas with them. Raise the tent with the help of an assistant by lifting the center to about 5 feet of the ground. Then, lift one upright while the upright it is attached to pivots on the ground, until the tent is raised to about 8-9 feet. At this point the tent will be too high off the ground, because you have not yet measured or cut the length of the uprights. Spin the side poles in place so the tenon is toward the ground.
3. Stretch the canvas slightly from both sides and mark the uprights where the side poles cross it. Repeat this for the other end. Then disassemble the structure, measure all the markings, and average them. Each canvas may vary slightly and this technique gives a better fit. Using the average measurement for your marks, drill the 1 1/2 inch holes. Cut off the board 1 1/2 inches below the holes you just drilled. The drawing shows the dimensions for my tent frame, but yours may vary slightly.



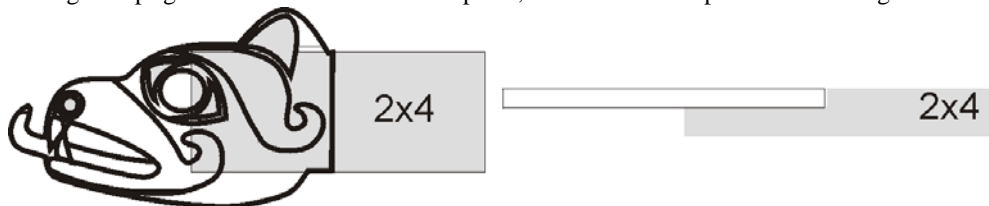
4. Cut the ground pole to length, drill, and reassemble the tent as before. The ground pole should go inside the upright that crosses outside its partner upright, and outside the upright that crosses inside its partner upright. The second drawing, which shows the ground brace from beneath, will make this clear.



5. Drill the 5/8 inch holes in the tenons for the ridge poles and side poles 3 1/4 inches out from the main pole (1 3/4 inches from the end of the tenon), and cut a piece of dowel about 4 inches long for each. The dowels should fit loosely enough to insert and remove them by hand, but not so loosely that they slip out on their own. These dowels will hold the end frame onto the ridge and side poles when the tent is assembled.
6. Design and cut the animal heads from the 1x10 board. For a tent this size the head should be about 10 inches by 14-18 inches. My design was based on the art style used for the Oseberg tent and bed. Each end has a bear and a wolf, derived from my surname of Bjornsson and my lady's surname of Ulfsdottir. In this way I used the slightly different animal heads to identify my household. Cut the shapes with a saw (I used a band saw for the outside and a jig saw for inside the mouth). Carve the lines with a V-gouge (parting tool) and use the V-gouge to create checking in the shaded areas. Then, outline all the carving with paint if you wish. Ensure that you have two right-handed and two left-handed animal heads so none of them are upside down or backwards when the tent is assembled.



7. The uprights have a 1-foot section that overlaps at the top where they cross. Cut a notch 6 inches long and 3/4 inches deep from each. Then, peg or glue the animal heads into this notch so they fit flush with the front of the upright board. Orient them so they will not be upside down, which should work fine since you have two right-handed and two left-handed heads. This technique is much easier and less wasteful of wood than cutting the uprights and animal heads in one piece, and the visual impact is almost as good.



8. Finish the frame as you desire. I chose a clear satin polymer for ours because we must store it outside. It has held up well to the weather thus far.

With the frame built, erecting the tent is easy with two people.

1. Lay the canvas on the ground. Slip the ridge and side poles into place.
2. Attach the uprights to the ridge pole and secure with a dowel.
3. Lift the ridge pole until the tent stands about 5 feet high. Then, lift one upright to push it until the ridge pole is about 8 feet high. Spin the ridge pole so that its thin edge is toward the ground, for maximum strength.

4. Lay the ground braces in place and, using the side poles, attach to the uprights. Spin the side poles so that they put maximum tension on the canvas and secure with dowels.

I greatly enjoyed the challenge of designing this tent frame and building it. My lady and I expect to get years of service from this tent and its frame.

## *Sources*

Almgren, Bertil, et. al., [The Viking](#), Nordbok International, Gothenburg, Sweden, 1971. This book is much like other "generic Viking" secondary-source books, but it was written prior to many of the discoveries in the 1980s and 1990s. It is therefore of limited use on many topics. It is, however, the only source I have found thus far with any information regarding Norse tent design.

Graham-Campbell et. al., [Cultural Atlas of the Viking World](#), Andromeda Oxford Ltd, Abingdon England, 1994. ISBN 0-8160-3004-9. This is a very good source for maps, artifacts, archeological sites, and history of the Viking Age. At 240 full-sized pages, it goes into fascinating depth on many topics and draws its conclusions from more recent archeological finds. Even so, it is a secondary source.

Smith, AG, [Viking Designs](#), Dover Publications, Inc., Mineola, NY, 1999. This book contains 175 line drawings rendered from archeological finds all over Scandinavia. The author captions each drawing by the object from which it comes and where it was found. This book is either a secondary or tertiary source, as its contents are "adapted" and do not, in all cases, reproduce the original artwork in every detail. Even so, it is a fine source of inspiration for creating my own original artwork, and I will continue to use it for that.

[The World of the Vikings](#), York Archeological Trust and the National Museum of Denmark, Past and Forward Limited, © year unpublished. This CD-ROM contains color photographs of thousands of Norse artifacts from several museums in northern Europe, and its search software makes using it very easy. While the information given for each artifact is limited, the quality of the photos is very professional, and I often find things there which can be further researched elsewhere.

Author's Note: Any scholar of the Norse period knows the dearth of primary sources available in this country. As I write this documentation, I have found and ordered a new book from the York Archeological Trust which was published in September 2000. It details all the wooden artifacts found in Coppergate and other sites in the area. The tent frame is already built, but this book is the first primary source for Norse woodworking that I have ever found, and I hope it will help me with future woodworking projects.



[Back to Danr's A&S page.](#)