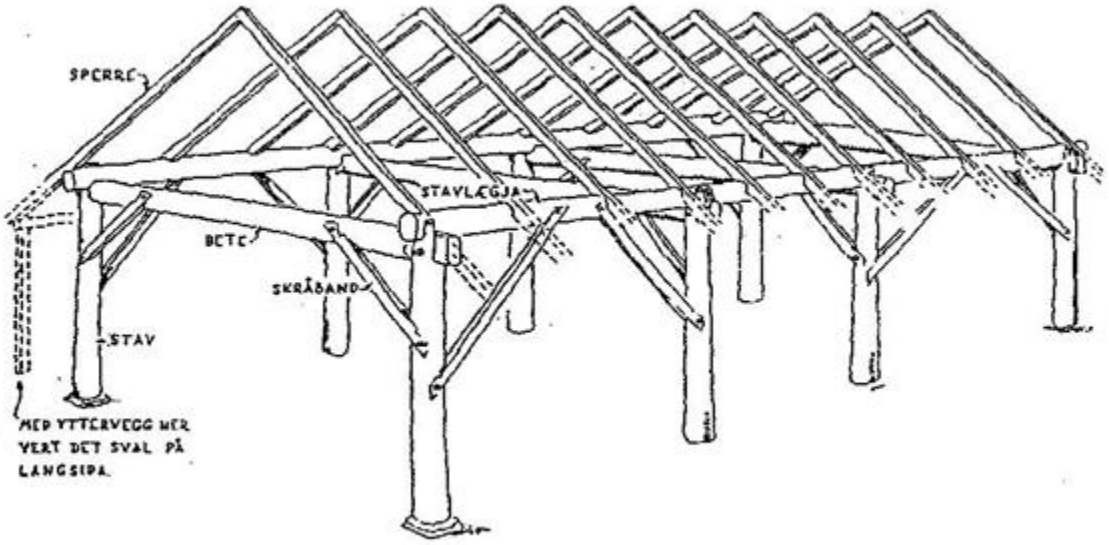
Grindbygningen

by Guttorm Arnesson

The Grindbygningen, or Grind building, is the Norwegian timber framing technique used by the Viking for their homes before log construction moved in from the east one thousand years ago. As log construction became popular, the Grindbygningen began to be used in out buildings, and continued to be used until this last century. These building were very sturdy, standing for centuries even though the construction techniques did not use any nails. About 1980, the Grindbygningen experienced a resurgence in Norway, in part so that the technique would not be lost. Today there is continued interest with new outbuildings being built with this technique.



Skisse som viser dei viktigaste delane i ein stavkonstruksjon. Alle teikningane i stykket er av forf.

The Grindbygningen consists of a series of grinds, like an archway, along the length of the building. The Grind is made from two stavs, or posts, with a bête, or cross piece. The bête determines the width of the building. The wood is white pine, so the width is the height of white pine trees, typically no longer than 28'. The Grinds are connected to each other by stavlaegje upon which rest the sperre, or rafters. Since you make joints in the stavlaegje you can make the building as long as you want by adding more grinds. The dimensions of the sperre is 1 to 3, height to width. The sperre are not fastened to the stavlaegje, but the weight of the roof, made of slate or sod or wood, presses the sperre into the joint on the stavlaegje. An integral part of the grindbygningen is the skraband, or brace between the stav and bête and between the stav and stavlaegje. The hidden mating surface within the joint is vertical ensuring a joint with the maximum strength possible. The wall of the Gridbygningen was attached to the rafters but does not bear any weight. The wall was woven branches, wattle and daub, sod, or vertical or horizontal wood. The weight of the building force or lock the joints together making the building extremely

strong. In Norway Grindbygningens typically stand for many centuries outlasting modern buildings and log homes.

Two years ago, July 2007, I took a course on Grindbygningen sponsored by the Vesterheim Norwegian Cultural Museum in Decorah, Iowa taught by Kare Herfindal from Norway who wrote the book on Grindbygningen[1], as well as other books on hand working techniques in wood. Kare has constructed many new buildings with this technique, as well as having studied the technique in old buildings. This was the first time the Grindbygningen technique was taught at Vesterheim, so I assume it is also the first time it was taught in the US. We build a 10' by 18' building. The wood was purchased by the Decorah parks department, and the building will eventually by transported to a park in the city. There were 10 students in the class. Several of the students were professional contractors and woodworkers. It took us 5 days to build and erect the gringbygningen.

The following sequence of photos show the grindbygningen I helped build at Vesterheim. In particular the pictures show the different parts and joints of the grindbygningen, the sequence of construction, and the overall building frame.

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The joint used in Grindbygningen between the stav and the bete which form the grind.</td>
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The stavlaegje supports the sperre, the rafters, in a series of grooves so that no nails are needed to fasten the sperre to the stavlaegje.</td>
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[1] Kåre Herfindal, "**Grindbygningen innføring i ein byggjeteknikk,**" **Utgitt:** 2004, **Forlag:** Vestnorsk kulturakademi, **Innb:** Paperback, **Språk:** Nynorsk, **Sider:** 31, **ISBN:** 9788291195261, **Utgave:** 1. utg., **Emne:** Husbygging Innholdsfortegnelse Legg i huskeliste.

Grindbygningen, Undertittel: innføring i ein byggjeteknikk, Forfatter: **Kåre Herfindal** Forlag: **Norges husflidslag** Format: Heftet, Språk: Norsk (nynorsk) Utgitt: 2004, Antall sider: 31 Opplag: 1 (2004) ISBN10: 8291195269 ISBN13: 9788291195261.

Setting up the first grind.	The three grinds with the stavlaegje in place
 The braces, skraband, used a dove tail joint construction.	 Next we installed the sperre, or rafters
 The completed Grindbygningen ready for the roof and sides.	 Here is a close up of the joint at the top of the stav showing how the sperre fits on the stavlaegje.
 We all signed the construction with our initials	 We also carved symbols in the stav to keep out evil spirits. This symbol stands for the virgin Mary, and is typically used on Grindbygningens.

I was worried that I might forget how to make the joints for a grindbygningen, so I built my own grindbygningen. I did not have a ready source of 6x6 rough sawn white pine, so I used 4x4 posts. This was also cheaper, and will be easier to transport. Yes, one can disassemble and set up grindbygningen in new locations quickly, making this structure ideal for a portable medieval structure. This size of the stav, bete, stavlaegjer, and sperre did necessitate recalculating the dimensions of all the joints. (In some places in Norway they used the same dimensions on the stav or post, bete or cross beam, and stavlaegje or sill-beam.)

The stavoyre, the joint between the stav and the bete.

My stavlaegjer.

The completed grind. The skraband or braces were made out of scrap 2x4. I am using temporary pegs made from pine, but I will have to change to something tougher.

The grinds set upright with the stavlaegjer in place. My grindbygningen has only one section, and the height is slightly too tall to match Viking proportions since my betes were limited to 8’ without a special order, which would take 3 weeks.

The completed grindbygningen.

The sperre on the stavlaegjer.

The sperre on the stavlaegjer.

The stavoyre.

Next I added a canvas onto the sperre. (Transporting stone shingles, a wood roof, or a sod roof is not an option.) Here is my grindbygningen at WW 2009 in the authentic campsite.

So does anybody need an outbuilding? Book early, I am busy in August and September already. In Norway there are no building codes covering grindbygningen since they stand for centuries. In the US there are also no set building codes for timber frame homes. If a building inspector asks, the contractor provides deflections, which for the size of the pieces easily meets and exceeds any code regulation.

Hilsen, Guttorm Arnesson