

Reconstruction of the Lejre Hall

by HOLGER SCHMIDT

The excavated house IV at Lejre differs from all other known Viking Age house sites in several ways. It must have been a rather unusual building. The size alone indicates this, as both the length of 48.3 metres and especially the width of 11.5 metres exceed the measures of almost all other houses.¹ The unbroken wall lines curve outwards both at the longitudinal walls and at the gables, for which reason the ridge of the roof must also have been curved so that the principal shape of the house was convex. However, in this house the characteristic aerodynamic shape typical of the period is slightly modified, as the central parts of the longitudinal walls were almost straight.

As many other houses from the early Viking Age the house was constructed according to an additive system of main bays, but the bays were only 3.2 metres wide compared with the normal 5–6 metres (Stoumann 1980; Hvass 1980; Nielsen 1980). In spite of a completely regular bay width two sets of posts were omitted in the centre of the house so that a huge bay of 9.5 metres was found here. This phenomenon is hardly accidental, as it seems to have been the ambition of the Viking Age society to create large open living-rooms, and precisely the central bay with the hearth was already in Iron Age houses often larger than the other bays.²

The excavated wall trenches and post-holes give no direct information about the building timber. However, on the basis of better preserved Viking Age houses it can be assumed that heavy split oak planks were mainly used.³

In this reconstruction attempt all the planks have been given the same thickness of 15 cm (6"), whereas the width varies. The main construction consists of a sort of a frame system. The planks have been raised in pairs with the large dimension across the house and at the top connected with mortised plank-shaped tie-beams. The frames carry both the longitudinal side purlins and small plank shaped posts, which again carry the ridge. This three-dimensional system carries and supports all other constructive elements in the house, the roof principally, but also the

longitudinal walls are secured by plank shaped beams mortised to the posts. The rigidity of the construction is partly due to the mortise joints of the planks and partly to the end fixing of the posts in the ground. Certain joints are furthermore secured by from nature bent pieces of timber like the knees known from the Viking ships.¹ On the basis of the huge bay in the centre of the house a superior structure with 4 enormous bays, each of them 3 main bays wide, and two smaller gable bays is outlined. Each of these enormous bays constitutes the maximum timber length available, for which reason all longitudinal beams are joined in these places. Finally each main bay is secured by external raking timber.

The walls are built of stave planks, dug into the ground and secured in a groove beneath the wall-plate. The height of the wall is estimated from the degree of inclination of the external raking timber and from the distance to the walls, 3.5 metres at the centre of the building and 3.0 metres at the gable ends. Both longitudinal walls have two doors.

Partition-walls dividing the house into 5 rooms are found in the main bays, and here the stave planks are secured in grooves beneath the beams and the wall-plates. Only the posts and door planks, which form part of the partition-walls, are dug into the ground. The bottom end of the stave planks are fitted into groundsills, which are mortised together with the timber dug into the ground, as it is known from some houses of the 9th century in Haithabu and Elisenhof (Schmidt 1992: 197).

As the excavation has proven traces of external raking timber opposite the centre of many of the main bays, it is proposed in the reconstruction that each main bay is equal to two wide trusses. The side purlins have been moved right out to the outer side of the frame in order to support the centre of the rafters or even to make it possible to construct the rafters in two parts of almost the same size. The aerodynamic principal form is accentuated by the hipped roof, which is caused by the external raking timber at the gable ends. Small louvers are found above the hips.

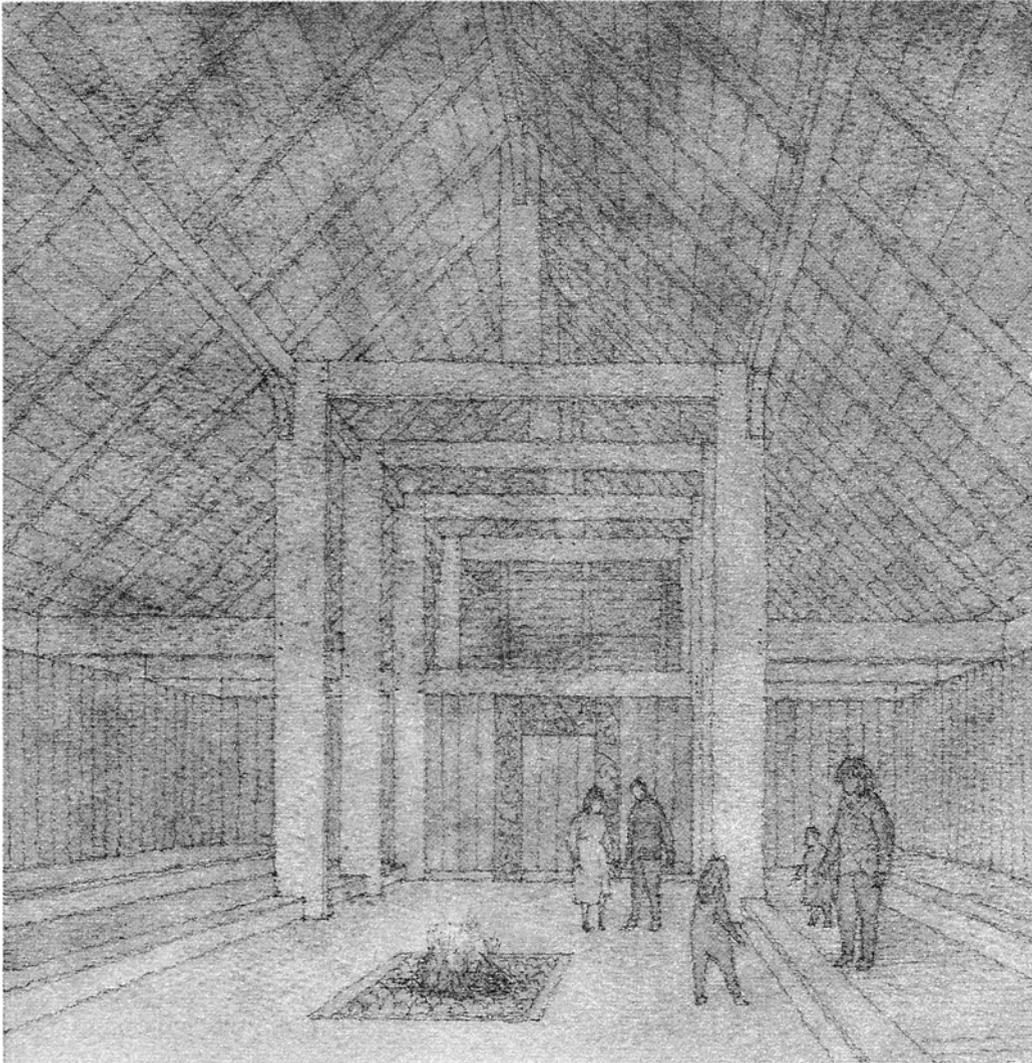
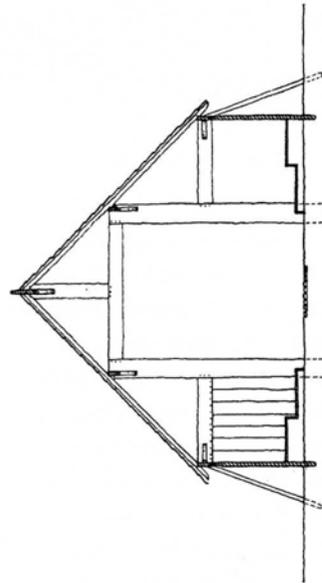
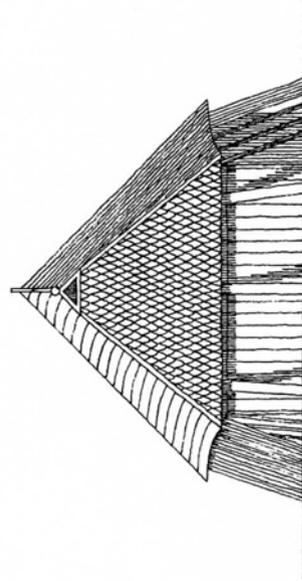
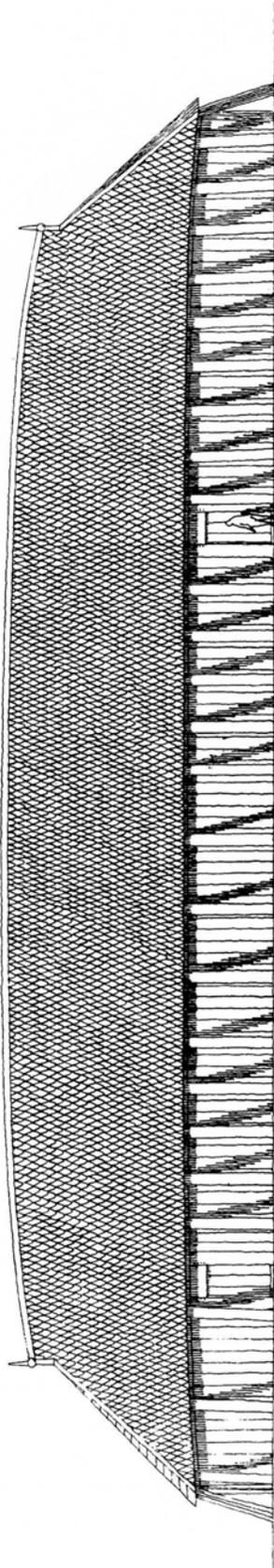


Fig. 1. Attempt to reconstruct the Lejre hall. H.S. 1992.

The shingled roof is inspired by some house shaped Viking Age tombstones known as hogbacks, which still exist in a surprising number in Northern England and Scotland. Their roof surface is often decorated with a pattern showing that the large houses of the period with curved longitudinal walls often had shingled roofs (Schmidt 1973:76). There may even have been a certain status connected with shingled roofs, since they are so carefully depicted in pointed, concave, rounded or quadrangular shapes. Oak shingles have been found in Denmark in connection with excavated Viking Age sites at Trelleborg and Hviding (Schmidt 1973:77; Jensen 1987:7). As the interior of the house is open to the ridge, and the underside of the roof is, therefore, visible, the

shingles are attached upon a layer of boards, which also contributes to the stabilization of the roof.

The side aisles of the Lejre hall are in the very large central part almost constantly 3.0 metres wide, which is almost exactly twice the width of the side aisles of other excavated Viking Age houses (Stoumann 1980; Hvass 1980; Nielsen 1980). In the halls of that period the side aisles were used as raised living spaces. This is evident from sites in both Denmark and Iceland (Olsen & Schmidt 1977:110, 114; Stenberger 1943), and it is described in the Norse sagas, where it is even mentioned how the construction could be rising tier upon tier (Guðmundsson 1889:180 f). The extraordinary width of the Lejre hall, which is chiefly due to the double width of



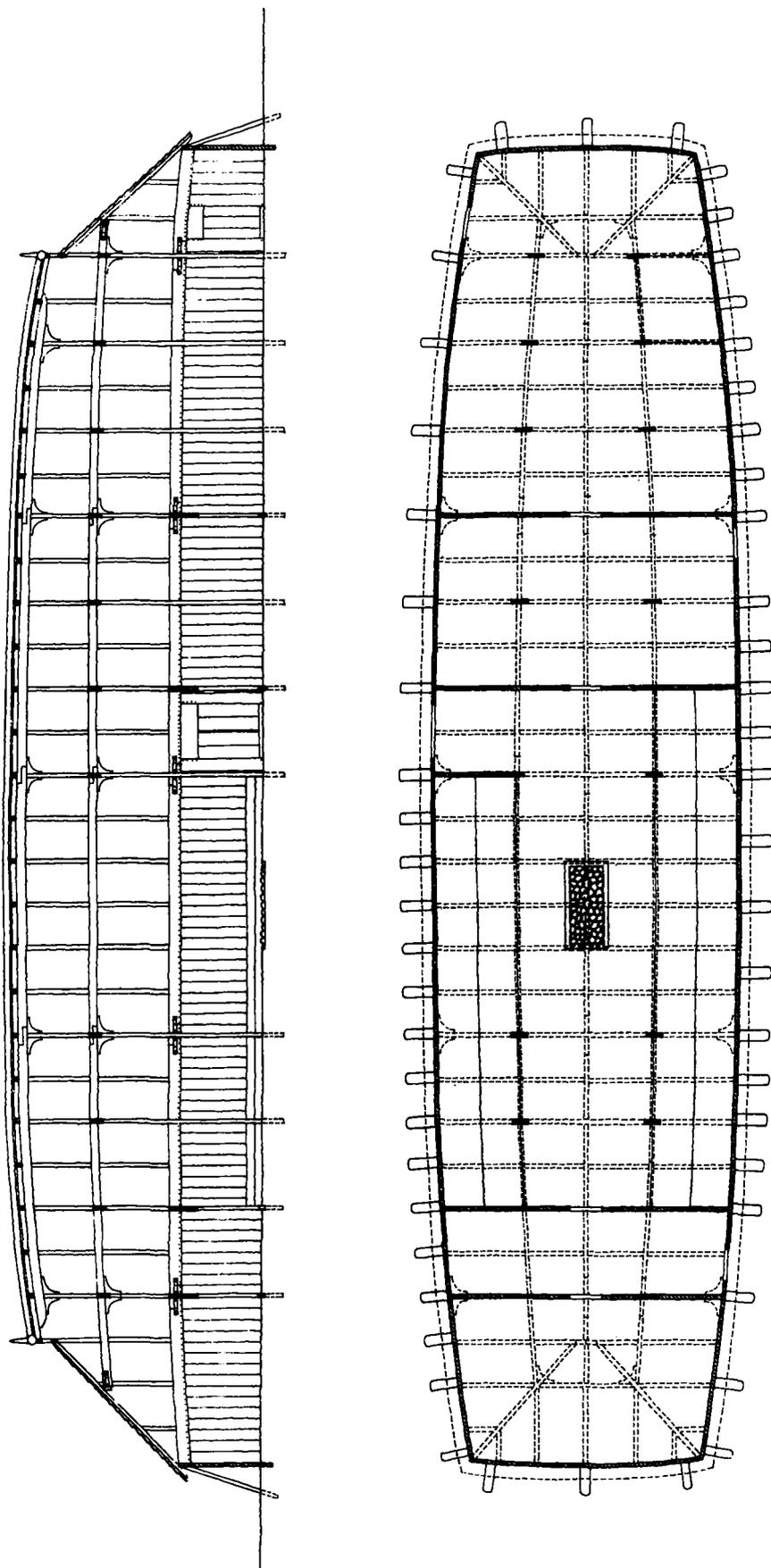


Fig. 2. Reconstruction of the Lejre hall. Plan, section and elevation, scale 1:250. H.S. 1991.

the side aisles, is, therefore, tentatively explained as a space built up in steps giving the room a very large number of seats. This construction is as the rest of the house made of oak boards. However, the space around the hearth had a simple earth floor like the other rooms of the house, as it has been proven archaeologically at Lejre (Christensen 1991:54 and above).

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NOTES

1. From Sædding houses are known that are 56 metres long (Stoumann 1980:106), whereas a house from Esbjerg Gammelby is 44 metres long (Vorting 1972:21) and a house from the Aggersborg village is 41 metres long (Olsen & Schmidt 1977:146). Viking Age houses are usually not more than 7.5 metres wide.
2. Schmidt 1992:195. However, it is uncertain whether the fireplace was situated in the huge bay as shown in the reconstruction.
3. Olsen & Schmidt 1977:116. Oak timber was preserved at Vorbasse and Omgård (Nielsen 1980:194), which was also the case at Haithabu and Elisenhof (Schmidt 1992:195).
4. A similar "knee" was found among the re-used timber of the farm Hedegård from the height of the Middle Ages near Halkær (Schmidt 1992: 201).

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