

1 Introduction

Green oak can be defined simply as oak which has been freshly cut. Thus green oak construction is the craft of forming a building frame with members of green oak. It is not a new craft, but dates back many centuries and was used by generations of carpenters to make the historic barns, houses and church roofs which can be seen up and down the land. Neither is the craft confined to history – it is very much alive today, and has provided the stimulus for the production of this book.

So what is the difference between working with green oak and modern timber construction? Today, most timber used for building is seasoned either by kiln or air-drying. This dissipates the movements which occur as the timber gradually loses its excess moisture before it is used for fabrication. Why not simply do the same with oak?

There are four basic problems with the use of seasoned oak for framing work, all of which relate to the properties of the material. In detail they are:

- ◆ **Hardness**
Even using power tools, seasoned oak is much more difficult to cut and shape than green. Anyone who has pruned roses will appreciate the difference between a green shoot and a dead branch.
- ◆ **Drying time**
Oak dries very slowly and typical frame members, say between 150 mm and 200 mm thick, will take some six to eight years of air-drying to lose excess moisture. Even drying the material in modern kilns would not achieve a reduction in this time for oak of such thickness. Since oak frames have always been individually designed there are no stocks of material and so a project would effectively be on hold for this period.
- ◆ **Drying movement**
Oak also has a large coefficient of drying shrinkage and so seasoned members would require a second cut after drying to true up the faces and to make the joints, which must fit accurately.
- ◆ **Fissures**
Seasoned oak has a marked tendency to fissure. Fissures complicate the cutting of joints and make edge moulding particularly difficult.

The consequence of all this is that a frame in seasoned oak, whether medieval or modern, is simply not a commercial proposition. Green oak, in contrast, makes great sense, giving advantages of programme – the timber can be used immediately, conversion is simpler – only one cut is required, and working is easier.

However, it has to be borne in mind that the drying movements of the timber, which might otherwise have taken place in a kiln or timber yard, will now occur in service. It is an obvious requirement that the frame should nevertheless remain stable, with no slackness developing in the joints, and that the building envelope – the walls and the roof – should retain their integrity.



Figure 1.1 Oak logs
Photo: Forest Life Picture Library



Figure 1.2 Prefabricated sections of green oak framing ready for delivery to site
Photo: C J Mettem



Figure 1.3 The natural fissures which develop in a green oak frame as the timber dries.
Photo: Ian MacNicol