

## 9 Case studies

The case studies have been selected from a very wide range of green oak structures built over recent years in the UK to demonstrate the concepts initially set out in Chapter 2 and which are then followed and expanded through the rest of the book.

In terms of structural framing, Chapter 5 (*Figure 5.5*) identified three categories of structural framing. For the case studies additional categories of historic reconstruction and exterior applications have been added.

### 9.1 - 9.2 Historic reconstructions

Whilst these have not been covered extensively in this book, they are a significant, but highly specialist area of green oak construction, often requiring extensive research, firstly to establish and then to mirror the original framing. They are exemplified here by the Globe Theatre in London and the roof of Stirling Castle.

### 9.3 - 9.4 Traditional models

These form the basis of much of the work undertaken by the green oak framing companies today, particularly for housing and for domestic-scale structures. Chapter 5 illustrates some of the forms which could provide the inspiration for such buildings and the case studies illustrate the range of possibilities in this area, ranging from a relatively modest scale house at the Mill O'Braco to the large-scale frame forming the boathouse at Abingdon School. Typically these structures use interlocking and pegged joints.

### 9.5 - 9.7 Modern green oak frames

Modern structures can be designed to extend the green oak framing tradition by taking advantage of developments in grading and connection techniques to create stylish and attractive buildings for a wide range of uses. Buildings in this category are designed with reference to structural engineering codes; often incorporating metal connections. The case studies selected show York Minster roof, where a modern solution was selected for reconstruction after a fire, Bedales School Theatre and a study centre for Darwin College, Cambridge.

### 9.8 Innovative or unusual forms

These are essentially 'one-off' structures requiring individual research and complex analytical engineering design; hence they have not been covered in detail in this book. Nevertheless, they represent a further step in the long history of development and use of green oak in construction and are exemplified by the gridshell roof at the Weald and Downland Museum.

### 9.9 - 9.11 Exterior uses

Finally, the use of green oak in external applications as discussed in Chapter 8, is demonstrated with case studies of the cladding at the National Maritime Museum, Falmouth, and bridges at Ealing and Polesden Lacey.

**Historic reconstructions:**



9.1 The Globe Theatre



9.2 Stirling Castle roof

**Traditional models:**



9.3 Mill O'Braco house



9.4 Abingdon School boathouse

**Modern frames:**



9.5 York Minster roof



9.6 Bedales School theatre



9.7 Darwin College study centre

**Innovative constructions:**



9.8 Weald and Downland gridshell

**Exterior uses:**



9.9 National Maritime Museum



9.10 Ealing bridge



9.11 Polesden Lacey bridge