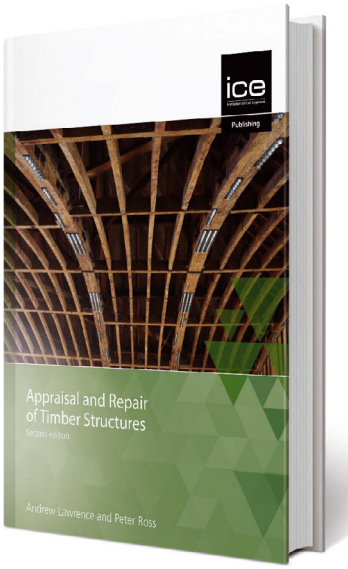
Review

Richard Harris welcomes this new edition of an essential reference book for those involved in the challenging field of timber building appraisal and repair.

Appraisal and Repair of Timber Structures (2nd ed.)

Authors: Andrew Lawrence and Peter Ross
Publisher: ICE Publishing
Price: £85.00 (paperback)
ISBN: 978-0-72776-178-1



THE ORIGINAL EDITION of this book was published in 2002. Since then, much has changed for those who might be commissioned for the work of appraisal and repair. It was only in 2004 that the timber Eurocode was published, and knowledge and understanding of this is now essential. The approach to design has changed, with more use of modern screws and board materials, and more computer analysis. Although many of the timber structures that might need to be assessed and repaired are old, over the past 20 years, to add to the challenges faced by engineers called in, there has been an increase in the construction of larger structures and longer spans.

Thus, the need for a second edition was clear. Peter Ross was the single author of the first edition, which was published when he already had more than 40 years of experience of engineering design with Arup. We are fortunate that Andrew Lawrence, who learnt his trade alongside Peter at Arup, has been able to bring his own experience to the revision. The second edition closely follows the content of the original, but there has clearly been much time and effort expended to bring it up to date.

The first edition was an excellent book and those familiar with it will recognise the format used here. Although the number of pages is almost the same, it appears as if much has been added. This has been achieved by careful pruning of information that is out of date or unnecessary (preservatives and specialist investigatory work), which makes space for additional case studies where innovative methods (e.g. long screws) are shown. The use of colour in the new edition is striking (the first edition was black and white).

As before, chapters are divided by full-page images of timber structures, arranged chronologically through the book. As the preface says, this gives an informal picture of timber development over 1000 years and it is all the better for being in colour. Together with chapter 2, 'The history of timber construction', they give a clear illustration of the way that timber design evolved. From craft design, which could produce such remarkable structures as the octagon of Ely Cathedral, through the great innovations of the 19th century, demonstrated by the covered slip no. 3 at Chatham Dockyard, we arrive at the 21st century with such remarkable modern structures as the Metropol Parasol in Seville.

The authors claim that the book is of value to architects and engineers undertaking work on all forms of existing structure – even those that are constructed in materials other than timber. That is a bold claim, but it is justified. Timber is a wonderful, modern material that must be respected if it is to be used at its best. While steel and concrete are quite different, they do present many of the same challenges.

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The chapters on finding defects, sequencing their diagnosis, recording and appraising them, and finding appropriate remedies are based on the specific issues surrounding wood, but the process is common to other materials. The chapters on the impact on design due to the introduction of Eurocodes, the general context of working on historic structures, the need to report clearly and concisely, and preparation of documentation that is appropriate to let a repair contract are applicable to all forms of appraisal.

The final third of the book is devoted to a series of case studies, covering retaining, repairing, reinforcing, renewing and relocating timber structures. There is much wisdom passed on in the whole book, but it is in the case studies that methods are right up to date, with one of them, the 200-year-old Brighton Corn Exchange, only due for completion during 2021.

The book seeks to inform the design engineer on the background, the materials, the methods, and the constraints for appraising structures of all sorts. It succeeds in its aims and should be an essential reference for all involved in the challenging field of timber building appraisal and repair.

It should also be required reading for those working on new structures so that they can understand how poorly designed buildings can deteriorate. The inclusion of modern structures is recognition that there will be plenty of work available in appraisal and repair, and the book is likely to remain in demand for a long time into the future.

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Richard Harris is a chartered engineer with 50 years of experience in construction engineering and his specialist area of work is timber engineering. He is Director of Time for Timber Ltd, and was formerly Professor of Timber Engineering at the University of Bath. He is also editor of the *Engineering History and Heritage* journal published by the Institution of Civil Engineers.