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Book review

Delamination Behaviour of Composites

Edited by Srinivasan Sridharan. Woodhead Publishing Limited, Cambridge, UK and Maney Publishing Limited (and in North America by CRC Press LLC, FL, USA)
Published on behalf of the Institute of Materials, Minerals and Mining, UK, 2008
ISBN 978-1-84569-244-5 (book) and 978-1-84569-482-1 (e-book), ISBN 978-1-4200-7967-8 (CRC Press), £190·00, 762 pp.

Composites are increasingly important materials in several branches of engineering, including construction and structures. Reinforced concrete is strictly an example, but currently the word 'composites' more often brings to mind bonded laminates, such as traditional plywoods and especially cement or resin materials reinforced by glass or plastic fibres. Such laminated composites bring potential benefits over the simpler traditional materials that they seek to replace or augment, including greater strength and/or toughness, and/or improved resistance to chemical degradation or corrosion. However, such attractive prospective benefits can be impaired or negated by failure or 'delamination' along the interfaces between differing material components, the principal cause of reduced performance of laminated composites.

This imposing book, comprising 25 chapters written by more than 30 specialist authors worldwide and occupying well over 700 pages, is a serious and timely scientific treatment of the key problem of delamination with laminated composites. There is an effective subject index and thus a wide range of readers, certainly including research and development scientists and students, but also practising materials and construction engineers, will find the work to be a richly detailed and accessible resource.

Professor Sridharan, an Indian engineer who obtained his doctorate in the UK and has been at Washington University, St Louis, in the USA since 1980, has completed a creditable editing task, organising the 25 chapters into five themed parts. Chapters 1–5 in part I address the basic science of delamination and methods of testing its resistance. Chapters 6–8 in part II describe some ways of detecting delamination, while chapters 9–12 in part III analyse delamination behaviour. Chapters 13–18 in part IV broadly cover modelling delamination and its effects. Finally, chapters 19–25 in part V importantly concentrate on the influence of delamination on structural performance and also strategies for its prevention or mitigation. Admittedly, there is the overall feel of a book structure that is based on the chapters available, reminiscent of a proceedings volume arising from conference papers, although in fact the subject scope appears reasonably comprehensive.

There is no doubting the authoritative international credentials of this work. Professor Sridharan leads some 34 chapter authors and co-authors, including himself, of whom 18 are from various European countries (four from the UK), 10 are from North America (eight from the USA), five are from Australia and the other one is from China (Hong Kong). A consistent format and style has been successfully achieved throughout all the chapters and, as has become common in our world of e-publishing, each chapter has its own and mostly extensive list of references or further reading.

Almost without exception the chapters are abundantly and usefully illustrated with figures and diagrams, some of which are impressive, most of which are effective, but a few of which are of poor quality compilation and/or reproduction. Many chapters are devoid of photographic images, while others have only a small number and they are unremittingly monochrome and, again, sadly often poorly reproduced. There is no overall glossary, which is perhaps a missed opportunity for a book otherwise covering an important specialised topic in such detail.

In summary, many and varied readers will find this book to be a valuable detailed resource in an increasingly important sector of construction materials.

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