

Book review

Fibre reinforced cementitious composites

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In recent decades our knowledge of the strength and fracture of strong composites has much improved. It is possible, for example, to account for many of the mechanical properties of fibres in a theoretically dense matrix, e.g. sintered Al_2O_3 . Cement and concrete matrices are not, however, theoretically dense and much remains to be learned about their fracture mechanics. The behaviour of fibres in weak, porous matrices is therefore an area of comparative ignorance. Yet these materials are commercially important, and have potential for further development.

The authors have evolved a comprehensive and effective plan for summing up the available knowledge, basically by treating the material in two parts. The first part deals with the mechanics of reinforced systems, taking into account the unusual nature of the matrix and the microstructural features of the cement-fibre interface. The second part of the book describes fibre properties, composite production and durability of the materials.

This reviewer does not know of another similar book; the present volume fills a hitherto unoccupied niche. As such, it will attract a wide but diverse readership. Consider the diverse nature of fibres used in reinforcing systems: steel, glass, high polymers and natural fibres such as cellulosic materials. Thus the readership includes fibre technologists in the broadest

sense, but it will also include cement and concrete technologists, especially those seeking to develop new cement-based composites or improve existing materials. This readership will not be disappointed; perhaps it will be a bit frustrated at the diversity of interpretations placed on the mechanical properties, but this is hardly the fault of the authors, who have faithfully reported and referenced the scattered literature. The book stands as a benchmark in the field, one against which others will be measured. Perhaps the only significant omission is material on gypsum matrices, which are not included in the scope of the book. On the positive side, the type is clear and crisp, and the quality of photographic reproduction is adequate.

If the reviewer is permitted a slight caveat, it concerns the introduction and the interpretation placed on Exodus 5, 6-7: 'Ye shall no more give the people straw to make bricks as heretofore: let them go and gather straw for themselves.' The writers imply that the role of straw in brickmaking is as a reinforcement. Despite the pitfalls of Biblical interpretation, the reviewer maintains that the role of straw was primarily as a fuel, to burn facing brick; other benefits were secondary.

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