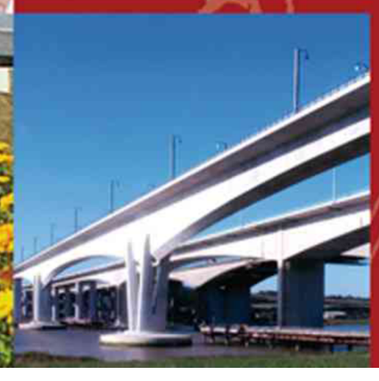
James Armstrong

Design Matters

The Organisation and Principles of Engineering Design



Springer

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James Armstrong, OBE, FREng, FICE, FIStructE
32 Langford Green
London
SE5 8BX
UK

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Foreword

Following several years as chairman of the Design Matters Group at the UK Royal Academy of Engineering, James Armstrong prepared at the request of the Academy a booklet outlining the basic strategic principles of engineering design, illustrated by four case studies.

James Armstrong has a wide range of experience relating to many different projects and requiring the integrating of many different disciplines. This experience has been used to demonstrate the basic design process and to show how the same general principles can be used to demonstrate the process on such diverse projects. It also suggests how these principles can be used to set out the strategic process for all engineering projects and incorporate the understanding in undergraduate engineering courses at university.

The principles identified cover fundamental strategic issues. They arise from experience of handling projects, involving planning, financing, and political/social issues as well as basic architectural and engineering matters.

Following the publication of the booklet, James Armstrong was invited by the international publishers Springer to expand the presentation of the three principles of need, vision and delivery into a more comprehensive book, of value to the practising engineer and to engineering educators.

In this book the fundamental principles are defined, with suggestions as to the need for and the process of relating the humanities to the sciences of natural law, and demonstrates this with 12 case studies of a variety of design projects from different engineering disciplines. General advice on the establishment of the three principles is given, together with a detailed analysis of one project, and a suggested format for auditing the design process.

Hugh Norie
Chairman Design Matters Group
Royal Academy of Engineering

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