Book review

Manufacturing Processes for Design Professionals

Rob Thompson. Thames and Hudson, London, 2007, ISBN 978-0-500-51375-0, 528 pp.

This book has been produced as a source book for all designers who need to consider how the object they are designing can best be fabricated, assembled and finished. While many of the examples given within the book are not related directly to construction, many of the processes described are used by manufacturers who supply to the construction industry, and there are many techniques used in general manufacturing that could and should be used to improve the output of the construction sector. The book is copiously illustrated and well laid out, so it is a pleasure to look at as well as being of practical use.

The introduction provides good guidance on how to use the book to the best effect and explains how forming, cutting, joining and finishing are combined to produce an attractive and functional object.

Part 1 of the book deals in great detail with forming technology in which the raw material is given a shape. Obviously, different materials require very different approaches, so the section is subdivided into different classes of materials from plastics and rubber through to composites. Each technique is fully illustrated including pictures of the machinery in action, and the opportunities and limitations are discussed and compared with other processes that could be used to achieve a similar result. In each example, the name of a manufacturer using the process is provided so that a designer can contact a company and get further information on that process.

Part 2 is concerned with cutting technologies from photochemical machining through to high pressure water jet cutting, and explains how some processes are more suitable than others to achieve the result that is required. Interestingly, cutting with a saw or a knife is not covered, either because it is too well known or perhaps because it does not provide the level of accuracy that the alternatives do. Again, examples are given including contact details to obtain more information.

Part 3 covers the various joining technologies, which range from the highly traditional timber mortise and tenon joint to more esoteric systems such as ultrasonic staking. There is a section on timber frame building in which the use of connectors is contrasted to the joining techniques used in timber joinery. This is the least satisfactory section because adhesives are given only cursory attention, although they are used in most types of manufacture. I would hope that any revision of this book will address this gap.

Part 4 is about finishing technologies from anodising to vacuum metalising and screen printing. The construction sector is well covered with sections on anodising, hot dip galvanising and electroplating. Some of the other techniques such as printing on glass deserve to be more widely used and this book provides a good insight into how this could be achieved.

Part 5 provides guidance on the selection of appropriate materials for particular uses, although this is not as complete an approach as that taken in *Materials* by Ashby, Shercliffe and Cebon (reviewed in a previous issue of *Construction Materials*). The examples given, although interesting in themselves, do not provide the stimulus to encourage unusual applications of the featured materials. Another missed opportunity within the text is that the potential for reuse or recycling of the materials is not considered. This is increasingly an important factor in the selection of materials.

Within the construction industry, I believe that this book would be a valuable resource, particularly for architects and engineers who want to do something out of the ordinary with a smaller component that will be on view in the finished building. By selecting an unusual material and the most appropriate manufacturing and finishing techniques, it would be possible to create something such as a balustrade or some bracketing that would be eye-catching and also economical to produce as a one-off item for a prestigious project. It is these things that create talking points and enable a good designer to lift an object from the mundane to the exceptional.

Sandy Mackay