

Conceptual design of buildings

James Norman introduces the Institution's new guide to conceptual design.

Designing buildings is a fantastic profession. It has so much variety: detailed design, problem solving on site, drawing details. However, for me, my favourite part of the design was always right at the start, when you had just been appointed by the client and there wasn't a set design on the table. I loved throwing around ideas, drawing options, ripping them up, coming at it from another direction.

Conceptual design of buildings is all about that early stage of a project. From when you are first appointed to when the conceptual design is complete. It covers a wide range of topics, from brief development and communication to having ideas and the type of calculations necessary to convince yourself the design will work, without doing a complete finite-element analysis.

The book is divided into three sections. The first five chapters are all based around the skills you need to define a brief, and communicate it. This section covers how to have good ideas, how to draw and write, how to develop a brief, and the questions you should ask at the very earliest stages (**Figure 1**). As with all skills, it is not enough to read the book the night before your first design team meeting and hope that, come the morning, you can draw – so we have included a number of simple and accessible exercises around drawing, writing and brief development to help you prepare.

The next five chapters are focused on solving the brief. The first three include advice on geotechnics and desk studies; the conceptual design of a building (choosing materials, grids, frame type, etc.); how to consider robustness, stability and movement joints.

All these chapters contain a wealth of knowledge and simple look-up tables to make this part of the design phase as simple as possible. They capture over 100 years of design experience across the seven authors and include many rules of thumb which are regularly used by practising engineers but not written down all in one place, until now.

Next is a chapter on suitable calculations, which includes all sorts of simplifications that can be used at concept design stage so that you can design a building in minutes, and then

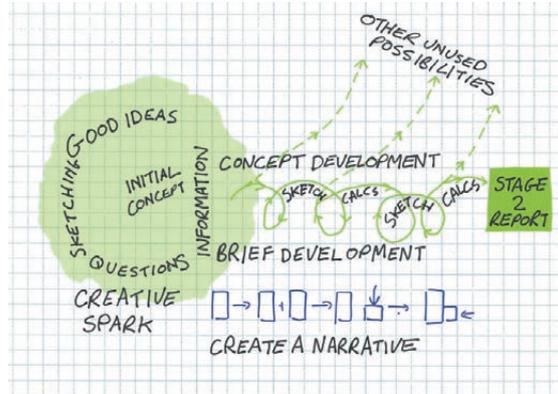


FIGURE 1: Concept design process

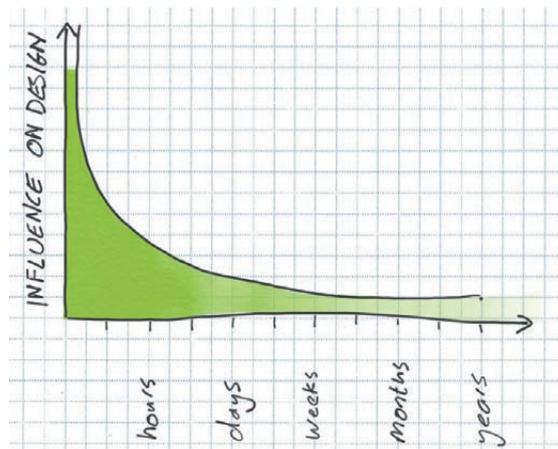


FIGURE 2: Degree of influence on design versus how long project has been going for

“ WE HOPE THAT THIS BOOK WILL CHALLENGE YOU TO THINK ABOUT DESIGN DIFFERENTLY

throw it all away when the brief changes! The last chapter in this section includes six worked examples covering both drawings and calculations, so that you can see this design process in action.

The final section covers the writing of the RIBA Plan of Work Stage 2 report. This report takes all that chaotic design energy and coalesces it into a coherent and well-articulated narrative that explains the development of the design, the rationale behind the decisions made, and the proposed concept (or

concepts) that should be considered and taken forward to the next stage of the design.

This book is for anyone who wants to practise the wide breadth of skills required to carry out the conceptual design phase of a building. From students, through graduates and beyond. The book is a guide and covers a wide range of different topics, but it should also be seen as part of a library – there are other resources you will want to acquire, from your own library of experience, online resources and other books. Rather than supersede the other books on conceptual design, it will knit them together, helping you to see the connections between them.

Finally, we hope that this book will challenge you to think about design differently. There is a climate emergency and we need to approach the design of buildings differently. This book does not claim to have all the answers, but it is widely understood that the earlier you consider the impact of your design on the environment, the more change you are able to make (**Figure 2**). This book therefore challenges readers to consider, right at the start of the design process, some of the big questions about reuse, embodied carbon and material efficiency.

James Norman is Associate Professor of Sustainable Design at the University of Bristol, UK and lead author of *Conceptual design of buildings*.

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