

Details for Passive Houses (second edition)

A catalogue of ecologically rated constructions

Along with the Passive House Planning Package, this giant of a book has to be the 'must have' standard reference for everyone interested in designing or building to passivhaus (passive house) standards. I must admit that I did feel overwhelmed at first glance as there are numerous charts, graphs and building sections and the whole book is in two languages - German and English which, initially, put me off further reading. However, as our cover feature for this issue was on this very subject, I felt myself constantly drawn to this tome and succumbed to reading the whole of the introductory section and browsing further and further into the book. What a revelation, and what a useful book it turned out to be. Frankly, I should have known better really as it has been compiled by the IBO (The Austrian Institute of Healthy and Ecological Building) who, for this second edition, have kindly included the English language text.

As you might expect, the book opens with a well translated introduction to the methodology of passive house design and a basic principles section. After this we get straight into the construction details that take up just about half of the four hundred page book, with one detail per page. This is the most essential part of the book because, as the title suggests, it is a guide to fine detailing of buildings to achieve passive house standards. This means that just about every conceivable building element and junctions between elements, that might be used in a building, have been carefully detailed within these pages. But it doesn't stop there.

Not only have hundreds of detailed cross sections been included (and almost every one has a 'standard' and 'alternative' specification and further in-depth technical description of suitability, construction complexity and maintenance issues) but further (mostly graphical) analysis of a range of associated issues are dealt with under the heading of 'Ecological Profile'. This discusses the components for a particular detail and includes; production, embodied energy, CO₂ content, acidification potential, disposal, waste volume, waste fractions, and disposal index. All this is for both the standard and the alternative construction. For some this might well be too much information, and personally, I sensed that there was an element of overkill to the environmental data as there is repetition, but as they have the data it is probably best published than left hidden away in some dusty archive. Certainly, for the architect that has an overly fussy client, the book provides more than enough supporting data, which can be wheeled out to prove a case as and when necessary.

However, for the purpose of choosing between a timber rafter roof, with all of the insulation above the rafters, or a similar detail, but with insulation between and above the rafters, the environmental data was too close to call especially as there is no 'on-page' summary of the tables and charts. That having been said though, there is a very useful 'at-a-glance' table with each detail, called 'Building Physics'. Now this is useful and includes (for both standard and alternative details); total thickness required, thermal transmission, rated sound insulation value, moisture safety and effective heat capacity. This allows us to compare across a range of similar options for the same element.

Following the construction detail section, the next eighty pages of the book is occupied with detailing of how we should marry each component element (wall to roof, for example) together in a section called 'connections'. There is little point in designing highly insulating components and then putting them together in a haphazard way, so this section is fundamental to the passive

house principles. How the building is assembled on site is key to achieving a passive house.

The remainder of the book, (and it is a big remainder) is dedicated to functional units, i.e. an explanation in text, tables and charts of the fundamental science behind the passive house principle - why the measures are needed. Some aspects of this section, however, could have easily gone over into the next section about materials, where a very wide range of standard and alternative materials are discussed and dissected for environmental merit.

Finally, there is a glossary intended to cover the words and phrases that some of us may not have come across before. However, this turned out to be full of refugees from the preceding 'materials' section, but regardless, it is still useful.

In summary, a fantastic resource for anyone interested in building to very high energy and airtightness standards. I would not normally recommend such a high priced book but this one, I think, is worth the investment.

Reviewed by Keith Hall

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Who knows, perhaps when the third edition comes out there will be a stand-alone English edition!





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