

Review

Dimitris Theodossopoulos is impressed by the excellent demonstration of applied research into recycling buildings in this ground-breaking book.

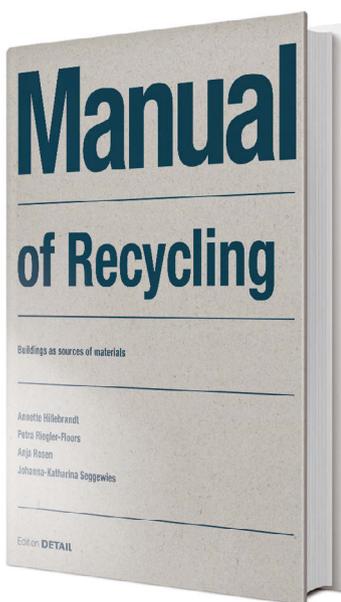
Manual of recycling: buildings as sources of materials

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Publisher: DETAIL

Price: €99.90

ISBN: 978-3-95553-492-9



THIS BOOK COULD MARK A GROUND-BREAKING moment in the establishment of an essential concept in the future of building construction: urban mining design. The key message of the authors is that buildings should be designed as ‘interim storage’ for raw materials and treated as resources.

This concept is formed around various existing and innovative design prerogatives, like the efficient layout of a building, minimisation of waste and use of natural resources, construction techniques, dismantling, energy consumption, etc. It refines and renews current sustainability strategies in a much more precise way around building technology. In a way, it can be even considered as conservation in the making.

A great contribution of this book is that the concepts are introduced as a viable approach to the recycling of buildings by means of very thorough research and analysis of experimental and existing structures. It provides all the necessary facts and figures in a systematic way around the production of buildings, questioning almost all current parameters in the sustainability game and design strategies.

It is important for the reader to engage with the concepts in the introductory chapters. This will make it easier to use the main body of the book as a manual and read information on broad procedures or specific details.

The concepts of the circular economy are slowly informing larger parts of modern projects, and more members of design and construction teams are prepared to engage with such processes. They are also the driver of many younger consultancies.

The book provides great support to all professionals who want to make their case when key decisions have to be taken, with a thorough, critical and structured collection of data and examples. It also makes clear that a paradigm shift is necessary and key decisions must be taken at the earliest possible stage, by all members of the professional team and the client.

The two theoretical parts cover the essential stages of planning (A) and construction technology (B). They acknowledge the wide and innovative range of parameters in contemporary design. Waste and its impact become central in the debate and this message should be retained by the reader throughout the book.

While acknowledging that the field is still new, I would like to see a future revision of the book

include more discussion on computational strategies, exploring possibly structural analysis.

Part B has sections dedicated to systems (detachable connections, mono-material construction) and processes (recycling of building materials, dismantling, reflection on the loop potential of buildings and cost comparisons).

The outline is very detailed about specific components and products, and the concepts are discussed either through extensive analysis or, more significantly, through original research by the authors, supported by a long and well-structured list of references.

Many of these discussions refer to isolated processes where the recycling potential can be relatively directly assessed, and the authors recognise this by assembling several of these processes into simulated design projects in Part C, primarily steel and timber construction.

Sections B and C provide substantial guidance or food for thought to those professionals who still need to be convinced of the usefulness of these concepts and practicalities in their application, as well as their own role once regulatory decisions permit such approaches.

Many parts of the book are written for architects, as designers of buildings with construction details directly impacted by recycling. However, the thorough overview of all aspects of planning highlights the role of professionals like structural engineers and is written in precise technical language, with clear and meaningful graphs, that can inspire these engineers’ design role and specifications.

This is an excellent demonstration of applied research and the authors should be encouraged to carry on with possible live projects, so professional engineer readers of the book are encouraged to get in touch with them to discuss collaborations or monitoring of their projects.

Dimitris Theodossopoulos

Dimitris Theodossopoulos teaches architectural technology and conservation in ESALA, University of Edinburgh. Following a civil engineering degree at the University of Patras, he specialised in conservation at Sapienza University, Rome and Edinburgh. His research explores stability and performance in prehistoric structures, Gothic vaults, modernist shells and neoclassical fabric.