

Foreword

Earth is a natural material that in recent years has advanced to become a high-quality building material for modern building projects. Its aesthetic qualities and character along with its beneficial effect on the indoor climate and general well-being are widely recognised. Of particular relevance are its environmental properties, for example the unparalleled low energy balance of many earth building materials. As an authentic historical building material, the physical characteristics of earth are also highly prized for the conservation and renovation of historic buildings.

This book is the product of many years' practical experience of earth building in Germany, where a traditionally hand-made material has had to prove itself in the context of a highly industrialised building sector. As a consequence, earth building applications and products in Germany are of a particularly high standard. "Earth Building Practice" offers architects, engineers and building tradesmen from around the world the opportunity to benefit from the experience of earth construction in Germany. The information presented in this book is expressly directed towards the needs of these users. Rather than presenting current research findings, it is our intention to provide concrete information and guidance for planning and construction practice that already incorporates the current state of research.

The chapter on *the raw material – soils for construction* provides a general and comprehensible understanding of the raw material with additional detail on aspects of particular relevance. It introduces a new proposal for a simple means of testing shrinkage and compression with a view to assessing different soil compositions and their potential properties as a building material. The technical characteristics of relevant *earth building materials* are presented alongside those of other typical building materials.

In this book particular attention has been given to two main areas of focus. The first of these is *earth and clay plasters*, the field in which earth building materials are currently most widely used. We describe in detail the processing of plasters with machines as well as working with coloured plasters and coatings.

The chapter on *dry earth construction* details a comparatively modern construction technique that has seen considerable developments in recent years. A particularly im-

portant application is the use of earth materials as *internal insulation* due to the need to improve the energy performance of existing buildings. Earth building techniques are well suited for such applications due to their ability to adapt to the conditions of the existing building fabric.

The chapter on *earth block masonry* reflects the most recent state of the art as detailed in the current norms under development. Similarly, modern *rammed earth construction* is examined in the context of its increasing application over the last 15 years and its advancement to a popular means of architectural expression.

The second main area of focus is the *renovation of historical earth building structures*. Christof Ziegert obtained his doctorate on the historical tradition of “weller” construction, Germany’s equivalent to cob, and for many years has studied monolithic earth constructions around the world, and in the former East Germany in particular. Ulrich Röhlen has worked for two and a half decades in the field of renovating earth and timber-frame constructions. The chapter contains a comprehensive description of historical earth building techniques along with detailed best practice guidelines for the repair of earth building constructions.

The final chapter on *building legislation and building practice* describes the legislative framework governing standards as well as trade skills in Germany. The German system is regarded around the world as being stringent and oriented towards maintaining high quality standards. As such, it serves as a basis for similar developments in other countries. Finally, Earth Building Practice closes with an up-to-date overview of typical work durations for different earth construction techniques and a side-by-side comparison of building costs for typical construction elements made with earth as well as other building techniques common in Germany.

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