

Preface

The construction industry is responsible for creating, modifying and improving the living environment of humanity. On the other hand, construction and buildings have considerable environmental impacts, consuming over 40 % of total primary energy, the built environment is in the centre of worldwide strategies and measures towards a more sustainable future. To provide resilient solutions, a simple optimisation of individual technologies will not be sufficient. In contrast, the whole-system thinking reveals and exploits connections between parts. Each system interacts with others on different scales, i.e. materials, components, buildings, cities; and domains such as, ecology, economy and social. Therefore, the sustainability of the built environment, the construction industry and the related activities are pressing issues faced by all stakeholders in order to promote a sustainable development. The forthcoming years are a challenge for practitioners and researchers that have in mind the sustainability of the built environment and the construction industry.

The main purpose of this book, *Sustainable Construction: Building Performance Simulation and Asset and Maintenance Management*, is to provide a collection of recent research works to provide the best practice solutions, case studies and practical advice on implementation of sustainable construction techniques prepared by industry. It includes a set of new developments in the field of building performance simulation, building sustainability assessment, sustainable management, asset and maintenance management and service-life prediction.

The book is divided into several chapters that intend to be a resume of the current state of knowledge for the benefit of professional colleagues, scientists, students, practitioners, lecturers and other interested parties to the network. At the same time, these topics will be going to the encounter of a variety of scientific and engineering disciplines such as civil, materials and mechanical engineering.

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