

Preface

A safe, comfortable, and sustainable built environment is highly desirable as we spent most of our time in offices, factories, or homes. With the rapid urbanization movement throughout the world, it is predicted by the United Nations that 66 % of the population will live in urban areas or cities by 2050. Urbanization can be seen as a boon as well as a key threat to world sustainability. While on the one hand it offers opportunities such as better health, greater access to social services, and enhanced living options, it may also lead to rapid sprawl, pollution, and environmental degradation, if not planned well. It is hence essential to focus on urban sustainability and a sustainable built environment, with green and smart buildings as one of the most important keys to sustainable urban living.

While sustainability and sustainable development is a very broad topic, it is often viewed as consisting of three main elements: economic development, social development, and environmental protection. These three elements are equally important and often intricately linked to each other. It is noted that ‘green’ is sometimes mistakenly associated with the overzealous and inordinate support and advocacy of the aspect of environmental protection, while completely ignoring economic and social development aspects of sustainable development. This is not, however, the purpose of using the word ‘green’ in the title of this book. Although environmental protection will appear to be the primary goal of the technology solutions discussed in this book, the economic and social aspects of development and adoption of these technologies cannot be ignored.

The word ‘smart’ is also an overused term these days with the advent of smartphones and other smart devices. These devices enable users to take automatic control of their surrounding conditions in lightning speed without much human intervention. Smart buildings of the future would incorporate business objectives, user preferences, and sustainability goals seamlessly in building operations, while providing an exceptional experience to the building occupants and other stakeholders.

The specific focus of this book is on buildings. Understandably, buildings are part of a larger ecosystem of building estates and cities. However, the focus of this book is on the building itself and how technologies can help enhance its overall

sustainability performance. Building systems cover very broad topics, and there are in-depth publications and books on each of these topics separately. The attempt here is to provide an overview of advanced technology options for green and smart buildings without going into in-depth discussions in each area.

As an author of this book, I sincerely hope that this book will provide valuable reference and motivation on adopting, developing, and further improving through research, the effectiveness of green and smart building technologies. Along with many of the challenges facing humanity today, climate change is an important one and the building sector could do its part by adopting green and smart buildings. With the wide range of technologies and their benefits described in this book, green and smart buildings should become a norm without any further excuses. I definitely wish that my children and the next generation in general should live, work, learn, and play in buildings that are good for them, good for the economy, and good for the environment.

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