

Book review

The Environmental Performance of Tall Buildings

Joana Carla Soares Gonçalves and Érica Mitie Umakoshi. Routledge, Oxford, 2010, ISBN 978-1-84407-812-7, £49.99, 400 pp.

This reviewer was a bit daunted by the length of the book; however, while long and often technical, the text remains palatable and interesting. It is well structured, enabling the reader to find their way around the content. The illustrations are many, varied and interesting, and the figures clear and concise.

The book provides a great introduction to tall buildings, outlining factors that influence their design and construction from a geographic, historic, cultural and architectural point of view and also describes the design challenges experienced with the increasing number of floors, varying climatic considerations and cultural/local market expectations. This section is particularly good for those unfamiliar with tall building design.

The initial chapter sets the scene by discussing the drivers for tall buildings, the place of the tall buildings within an urban context and what this means in relation to planning, design, urban space and environment. This is followed by a 'global perspective' chapter providing a historical and cultural background for tall buildings in Europe, North America, South America and Asia. Many specific buildings in these continents are described and commented on. While not immediately addressing the book's title, these chapters put the focus of the book into context.

The environmental issues are then introduced in earnest. Environmental design strategies are explained (what to consider and when, how to address existing site conditions etc.) and comprehensive descriptions of technical design solutions are provided. These descriptions address building position, building layout, material selection, servicing strategy, renewables and alternative energy supply, among other considerations. Climatic conditions are explored, particularly wind as one would imagine, and the author cites examples of buildings where the solutions described have been implemented. While the focus is still tall buildings, much of this chapter is relevant for all building design.

Following on from the design solutions, the author discusses performance standards and environmental benchmarking, mentioning existing methods

for benchmarking buildings and also introducing a qualitative and quantitative list of issues/criteria established by the author and used within the book to compare buildings (see next paragraph). The qualitative criteria consider the social aspects of a tall building including its appearance, its integration within the existing infrastructure and its social standing or acceptability. They also cover air pollution and daylighting for neighbouring buildings and internal comfort, building adaptability and architectural expression. Within the quantitative criteria categories of space efficiency, energy efficiency and internal comfort are considered.

These qualitative and quantitative criteria are then used by the author to comment on and discuss the environmental performance of 14 tall buildings situated around the globe (there is a possible bias here towards building in Europe and the Americas, perhaps owing to available information.) The author successfully tabulates the comments and discussion for comparison, acknowledging the difficulties of using qualitative data for comparison purposes. The information is comprehensive and the discussion sound. Unfortunately, although no fault of the author, some information is missing for certain parameters but this is honest and does not detract from the work done.

The final chapter on lessons learnt and future issues is short and to the point. It summarises the issues faced by tall building designers in terms of the environment, but also in the broader context of social and economic considerations.

Within the final chapter and throughout the book the author acknowledges that the majority of environmental claims relating to tall building performance are purely based on design information/predicted performance and, as with any building, the actual operational information needs to be collected and analysed in order to have a full and comprehensive understanding of how the building actually performs. The limitations of obtaining these data are discussed in terms of client confidentiality and a reluctance to share information about poor performance. The question is raised about whether the future of tall buildings can be considered within the sustainability agenda in the absence of such information. Could this be addressed by the industry? I hope so; we will have to wait and see.

Vicki Mistry