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Dense and Green Building Typologies

Design Perspectives

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Foreword

Greening Singapore

Singapore is a small island with big needs. Our urban transformation since independence has been dramatic but our urban challenges remain the same—how do we accommodate the needs of a country and a city within our limited land; how can we build an endearing home, a distinctive global city.

Our planning approach helps us balance various needs. It reflects the very heart of our urban governance framework which focuses on the long-term and on enduring benefits for Singapore. We start with the Concept Plan which is an integrated land use and transport plan that looks 40–50 years into the future. Regularly reviewed, it serves as a roadmap for the way forward and provides a structured framework for agencies to come together to consider changing trends and long-term land use needs. The broad strategies laid out in the Concept Plan get translated into the Master Plan which serves to guide Singapore's development needs over the next 10 to 15 years and gets comprehensively reviewed at least once every 5 years.

Planning for greenery has always been important to providing a quality living environment, and as a strategy to strengthen Singapore's biophilic 'City in a Garden' identity. At present, we have safeguarded 9% of our land for parks and nature reserves—visually and experientially, the greenery seems more pervasive than that.

Integrating urban development with greenery has been a key strategy. With a wide range of parks well distributed in different areas, relentless tree planting along roads and an island-wide network of 'park connectors' to make green spaces joined up, the greenery is extensive. Greenery provides visual relief and space for recreation, and it is an important component in creating a liveable environment, especially in a high-density context like Singapore's. As we develop further, we seek to introduce more greenery to provide visual relief, community space and mitigate urban heat island effects. A number of guidelines have been introduced to encourage greenery as part of developments. One example is the Landscaping for

Urban Spaces and High-Rises (LUSH) programme. First introduced by URA in 2009 as a consolidated urban and skyrise greening scheme comprising incentives and requirements, the intent is to capitalise on development as a means to inject more greenery into the city. The premise is simple—replace the greenery which has been taken away as a building is developed or redeveloped. The programme has been implemented in close collaboration with private-sector partners. Today, greenery is increasingly become a norm in developments, creating a more pleasant and comfortable urban environment.

In Singapore, we have been lucky to have many leading proponents of dense and green building typologies pushing the boundaries and producing seminal works here. A number of these leading practitioners have been interviewed for this publication "Dense and Green Building Typologies: Designers Perspectives". I believe the interviews have helped the practitioners to reflect on the integration of greenery with developments and will put them in good stead for their future projects. The rich knowledge captured in this publication will serve many others.

Singapore, Singapore

Hwang Yu-Ning
Chief Planner
Urban Redevelopment Authority

Preface

The following book chapters are based on the interviews conducted over 6 months (March–August 2017) with renowned architects and landscape architects in the context of the 'Dense and Green Building Typologies' research project of the Future Cities Laboratory. The interviews probe the practical knowledge accumulated over the years by the interviewees. The volume contributes to the understanding of how greenery can be integrated into the high-density built environment during the design, construction and maintenance stages of dense and green buildings. It does so by investigating design thinking, policies, guidelines, challenges, impacts and benefits in the context of Singapore.

Dense and Green Building Typologies Project

Dense and Green Building Typologies is a 5-year research project of the Future Cities Laboratory (FCL), established by the Swiss Federal Institute of Technology Zurich (ETHZ) and the National Research Foundation Singapore in collaboration with key academic partners including the Singapore University of Technology and Design (SUTD). FCL studies sustainable future cities through science, by design and in place, with its High-Density Mixed-Use Cities Scenario developing newly integrated planning paradigms, research methodologies and implementation processes to support higher population densities, higher standards of environmental sustainability and enhanced liveability. As part of that scenario, Dense and Green Building Typologies investigates the environmental, social, urban, architectural and economic benefits of large buildings with integrated green spaces in high-density contexts systematically through a series of international in-depth case studies, including in Asia, Europe and the Americas.

Singapore, Singapore — Thomas Schröpfer
Zürich, Switzerland — Sacha Menz

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Singapore, Singapore Mayank Kaushal

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Prof. Dr. Thomas Schröpfer is Professor of Architecture and Sustainable Design (ASD) at Singapore University of Technology and Design (SUTD) and Principal Investigator of the Dense and Green Building Typologies project in the Future Cities Laboratory at the Singapore-ETH Centre (SEC-FCL). He began his academic career at Harvard University where he was appointed as Assistant Professor of Architecture in 2004 and Associate Professor of Architecture in 2008. He was named Full Professor after joining SUTD in 2011, where he became Associate Head of Pillar of ASD, Co-Director of the SUTD-JTC I3 Centre and Director of the University's award-winning Advanced Architecture Laboratory. He held visiting professorships at the Massachusetts Institute of Technology, Swiss Federal Institute of Technology and the National University of Singapore. In 2015, he was appointed

as a member of the SEC-FCL Steering Committee. His book publications have been translated into several languages, and include Dense + Green: Innovative Building Types for Sustainable Urban Architecture (2016), Ecological Urban Architecture: Qualitative Approaches to Sustainability (2012) and Material Design: Informing Architecture by Materiality (2011). He is the recipient of prestigious awards and recognitions, including the Singapore President's Design Award, the German Design Award and the Asia Education Leadership Award. His research and design projects have been exhibited at important international venues, including the Venice Architecture Biennale and the World Congress of Architecture.

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Prof. Sacha Menz is Professor of Architecture and Building Process at the Swiss Federal Institute of Technology (ETH) Zürich. He has served as the Dean of the Department of Architecture and has been leading the Institute of Technology in Architecture (ITA) for over 10 years, where he designed and coordinated the building process of the Arch_Tec_Lab. He also established the Master of Advanced Studies (MAS) Programme in Architecture, Real Estate and Construction, as well as several CAS (Certificate of Advanced Studies) courses at ETH. He held the position of Deputy Director at NCCR (National Centre of Competence in Research) in Digital Fabrication and was a guest professor at South-Eastern University in Nanjing, China. Trained in Architecture at ETH with a master's degree, Sacha co-established sam Architects and Partners (SAM) in Zürich/Switzerland. SAM designed the award-winning "Vorderer Sternen" Building in Zurich. He is member of several boards such as the Architectural Board of Consultants for the City of Ostfildern, Germany; Board of Directors of Swiss Engineers and Architects Association (SIA), Reviewing Board for Clusters of Excellence of the DFG

(German Research Foundation). He has authored academic publications, including Three Books on the Subject of Building Process and Public Space Evolution in High-Density Living in Singapore and actively contributes in international conferences and architectural juries.