VENICE ARCHITECTURE BIENNALE 2018

TIME SPACE EXISTENCE EXHIBITION

DENSE AND GREEN BUILDING TYPOLOGIES

ARCHITECTURE AS URBAN ECOSYSTEM

PRESS RELEASE

ETH zürich

(FCL) FUTURE CITIES LABORATORY 未来城市实验室

SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

PRESS RELEASE
For immediate release

Singapore's 'green' buildings rise to the occasion at the Venice Architecture Biennale

'Dense and Green Building Typologies: Architecture as Urban Ecosystem' exhibition by the Future Cities Laboratory will be featured at the 16th Venice Architecture Biennale from 26 May to 25 November 2018.

22 May 2018 - Future Cities Laboratory brings iconic 'green' buildings in Singapore to the most renowned architectural event on the international stage – the Venice Architecture Biennale. The presentation of these buildings goes beyond their physical attributes, providing insights into their urban design, architectural, environmental, social, and economic impacts.

'Dense and Green Building Typologies: Architecture as Urban Ecosystem' is part of the 'Time Space Existence' exhibition hosted by the European Cultural Centre (ECC) at Palazzo Mora in Venice. It is presented as part of the 16th Venice Architecture Biennale from 26 May to 25 November 2018**.**

The integration of green spaces in buildings is increasingly being explored in contemporary architecture and urban design practice in Singapore and beyond. This produces new building types for high-density environments that include public spaces, extensive sky terraces, sky bridges, vertical parks, roof gardens, and other 'green' components.

Combinations of these green features, often applied to mixes of residential, civic, and commercial land use, conjoin at times to produce 'vertical cities' in which the building section becomes part of larger urban ecosystems such as parks, gardens, and river networks. As such, density and sustainability are not contradictory, but rather, are mutually dependent and synergistic.

"Beyond the beautiful green façades, greenery in and around buildings in fact provides real benefits on many fronts", says the project's principal investigator, Prof Dr Thomas Schroepfer from the Singapore University of Design and Technology. "We are interested in understanding them, so that we can better develop strategies for the built environment to enhance sustainability and achieve high liveability for the city and its inhabitants.

The advent of green buildings in Singapore is aligned with the Nation's efforts in shaping it into a 'City in a Garden'. The buildings featured in the exhibition, with landscape features

thoughtfully integrated into their design, were built in the last 10 years and have risen to become icons of the new generation of 'green' buildings in Singapore. They include Oasia Downtown, Khoo Teck Puat Hospital, Punggol Waterway Terraces I, Solaris at Fusionopolis, Skyville @ Dawson, and The Interlace.

"Green buildings are very quickly becoming the new norm in densely-built Singapore", says the project's co-principal investigator, Prof Sacha Menz from ETH Zurich. "The concerted effort and speed at which this is happening is still unheard of in other parts of the world and we think it is important to bring these green buildings and the ideas behind them to the world stage."

Indeed, the exhibit takes visitors beyond the facade of these buildings to 'behind the scenes'. A series of interviews with architects and landscape architects involved in these projects, such as Tan Shao Yen of CPG Consultants, Richard Hassell of WOHA, and Henry Steed of ICN Design International, provide important insights to the inspiration, rationale, and design concepts behind these buildings.

The six projects are among the cases studied as part of the 'Dense and Green Building Typologies' research project at the Future Cities Laboratory (FCL), in collaboration with the Singapore University of Technology and Design (SUTD). The research project seeks to develop design strategies and innovative approaches to high-density architecture and urban design, taking into account the range of benefits of greenery in and around buildings, including: urban design, architectural, environmental, social, and economic benefits.

The FCL is a programme of the Singapore-ETH Centre, jointly established by ETH Zurich – the Swiss Federal Institute of Technology Zurich and Singapore's National Research Foundation, as part of its CREATE campus.

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ABOUT

Future Cities Laboratory (FCL)

Established in 2010, the Future Cities Laboratory (FCL) aims to make cities more sustainable and liveable based on insights from science and design. FCL is a programme under the Singapore-ETH Centre, established by ETH Zurich—the Swiss Federal Institute of Technology in Zurich— and the National Research Foundation of Singapore, under its CREATE programme.

Research at FCL is structured around three problem-oriented and transdisciplinary research 'scenarios' that link science, design and specific places. The scenarios combine discipline-specific research in architecture, planning and urban design, mobility and transportation planning, sociology and psychology, landscape and ecosystems, energy systems, materials and engineering, and information technology to tackle urban challenges of today and tomorrow.

FCL brings ETH Zurich together with academic partners including the École Polytechnique Fédérale de Lausanne (EPFL), Nanyang Technological University (NTU), National University of Singapore (NUS), and Singapore University of Technology and Design (SUTD).

For more information, please visit www.fcl.ethz.ch.

Dense and Green Building Typologies project at FCL

At the Future Cities Laboratory, the 'High-Density Mixed-Use Cities' research scenario develops new 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, the 'Dense and Green Building Typologies' project systematically investigates the urban design, architectural, environmental, social, and economic benefits of large buildings with integrated green spaces in high-density environments through a series of in-depth case studies in Asia, Europe, and the Americas.

The research project seeks to develop design strategies and innovative approaches to high-density architecture and urban design, taking into account the range of benefits of greenery in and around buildings that are examined in a number of work packages:

Urban Design and Architecture Benefits explores design strategies that mitigate the negative effects of high density.

Environmental Benefits studies the performance of dense and green building types in terms of thermal comfort, heat gain, urban heat island effects, air quality and noise pollution.

Social Benefits investigates dense and green building types in terms of use and appropriation as well as psychological comfort.

Economic Benefits examines the role of dense and green building types in land value appreciation.

The research as a whole explores how dense and green building typologies can play an important role in the development of compact yet highly liveable future cities in Asia and around the world.

This project at the Future Cities Laboratory is led by principal investigator, Prof Dr Thomas Schroepfer, who is Professor at the Architecture and Sustainable Design pillar at the Singapore University of Technology and Design (SUTD), and co-principal investigator, Prof Sacha Menz, who is Professor at the Architecture and Building Process chair at ETH Zurich.

For more information, please visit www.denseandgreen.fcl.ethz.ch.

APPENDIX I: EXHIBITION FACT SHEET

The Exhibition:
Dense and Green Building Typologies: Architecture as Urban Ecosystem

I. Exhibition details

Date: 26 May – 25 November 2018
Venue: Palazzo Mora, First Floor, Room 5, Strada Nuova #3659, Venice, Italy
Host: 'Time Space Existence' exhibition hosted by the European Cultural Centre (ECC)
Presented by: Future Cities Laboratory and Singapore University of Technology and Design

II. Concept

The exhibition 'Dense and Green Building Typologies: Architecture as Urban Ecosystem' is based on the research project Dense and Green Building Typologies conducted at the Future Cities Laboratory at the Singapore-ETH Centre. The research contributes to the systematic understanding of urban design, architectural, environmental, social, and economic benefits of dense and green building typologies in high-density urban environments.

Six dense and green buildings in Singapore, one in Sydney, and one in Milan were chosen as case studies for a thorough investigation. The findings of all work packages serve as the basis for the research team's development of design strategies for dense and green buildings in high-density urban contexts.

The building projects from Singapore that are presented at the exhibition include:

1. Oasia Downtown
2. Khoo Teck Puat Hospital
3. Punggol Waterway Terraces I
4. Solaris at Fusionopolis
5. Skyville @ Dawson
6. The Interlace

III. Approach

The Dense and Green Building Typologies research team is studying dense and green buildings to understand the urban design, architectural, environmental, social, and economic benefits of green spaces in and around buildings. In the exhibition, the buildings are 'dissected' for the analysis of the various benefits and to provide clearer visual representation of the analysis.

i. Urban design and architectural benefits

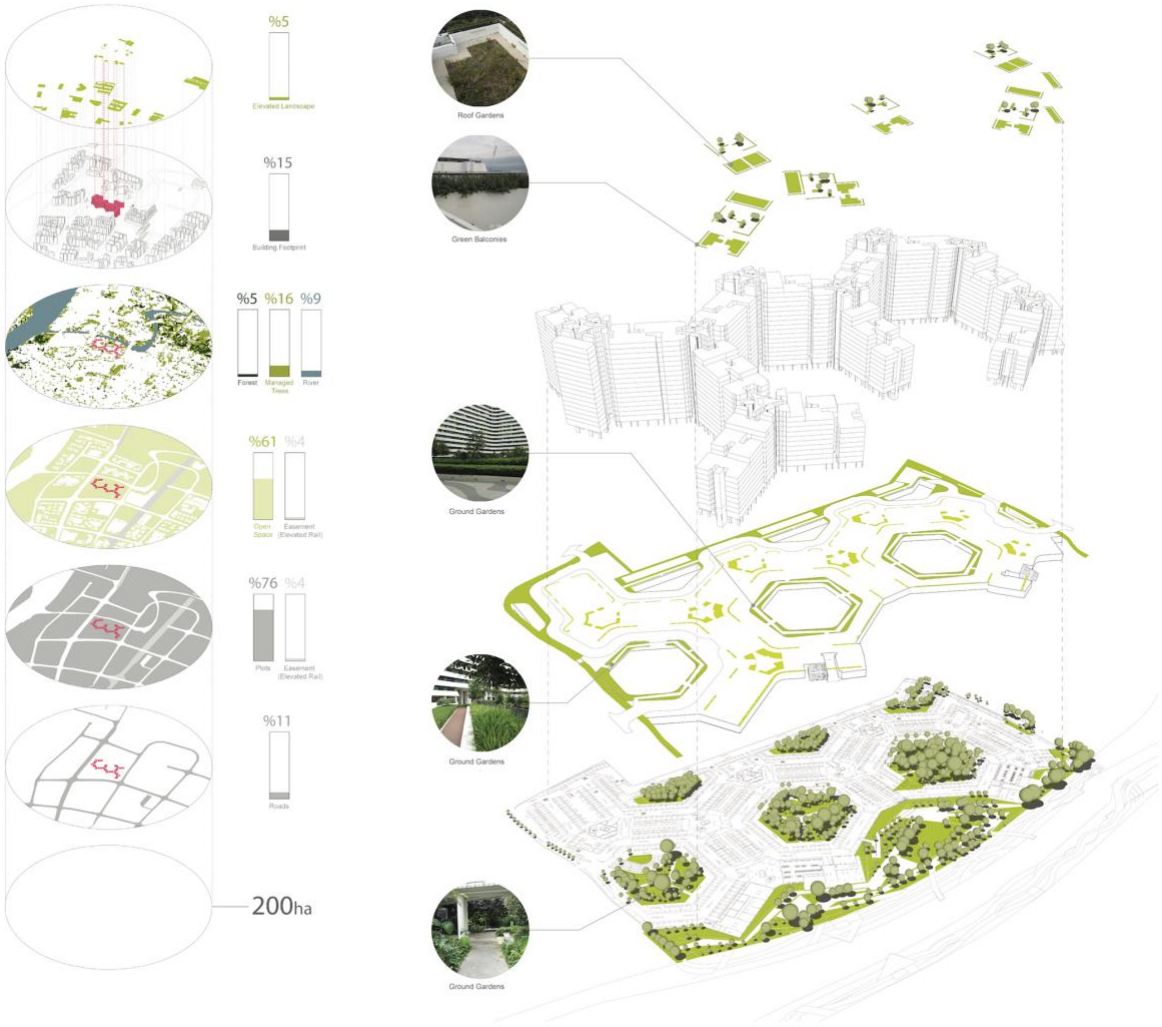


Illustration of the urban design and architectural features of Punggol Waterway Terraces I, including greenery provision, distribution, and integration.

ii. Environmental benefits

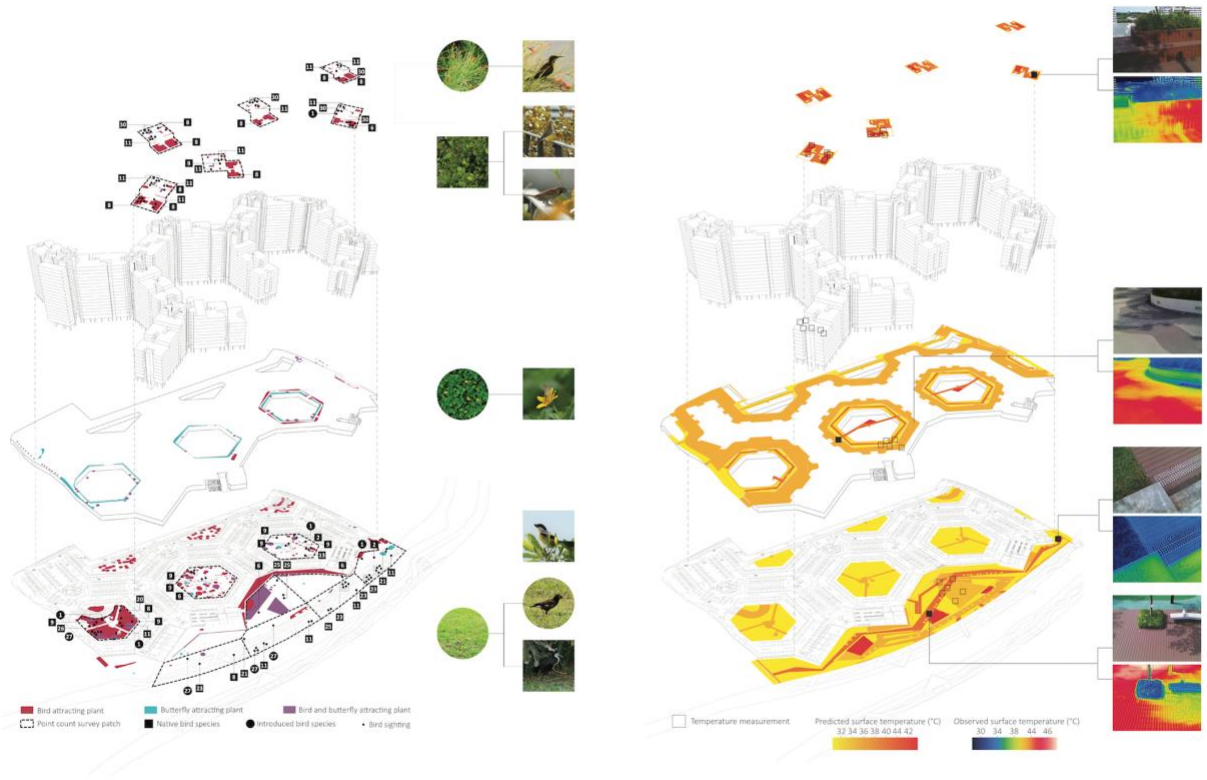


Illustration of the environmental benefits analysis of Punggol Waterway Terraces I, including biodiversity and surface temperature.

iii. Social benefits

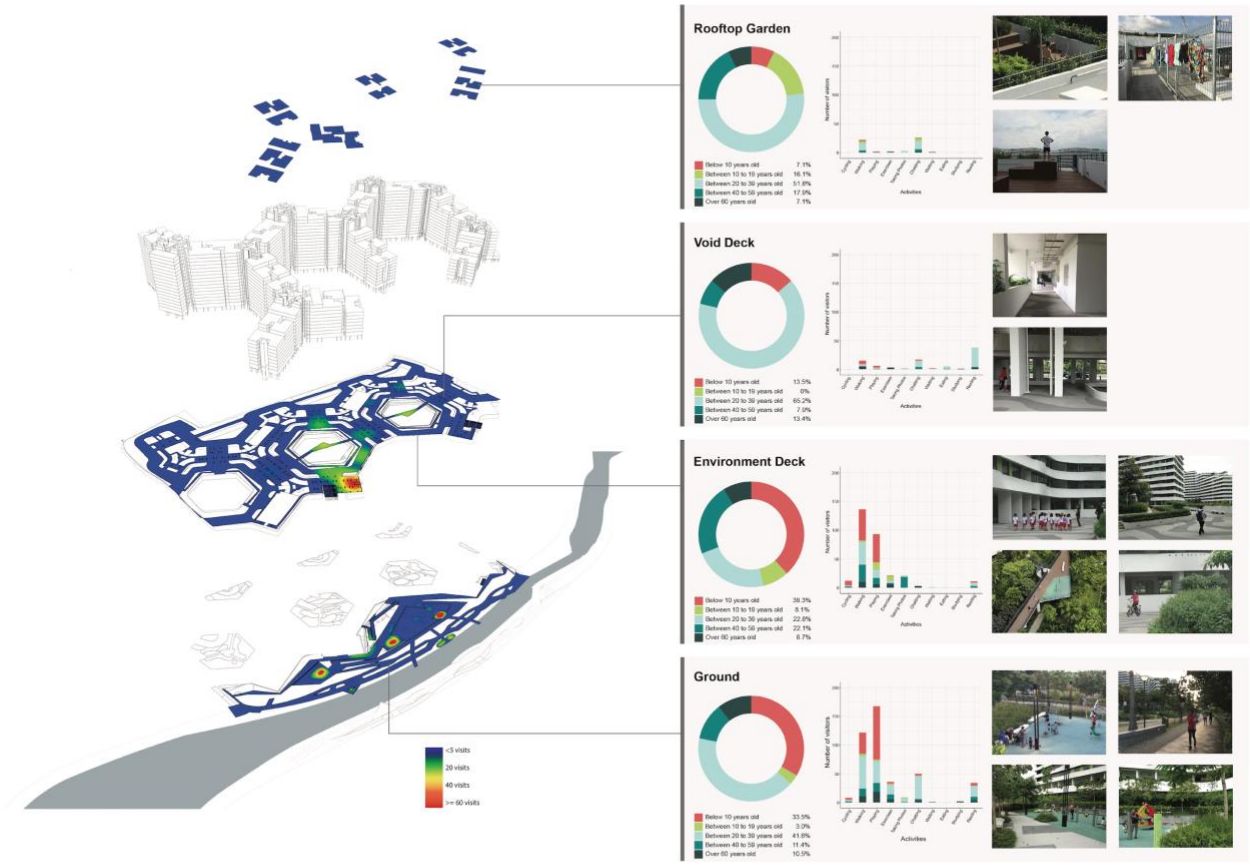
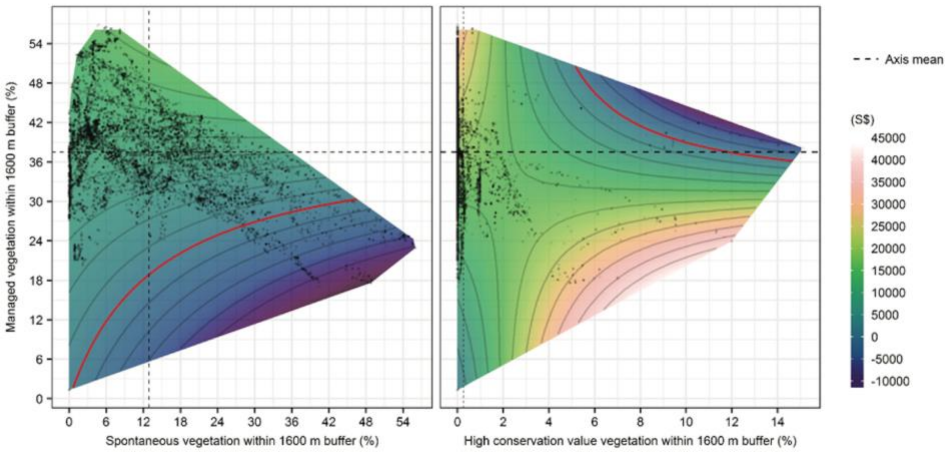


Illustration of the social benefits of greenery at Punggol Waterway Terraces I, including heat map of space use and age group patterns.

iv. Economic benefits



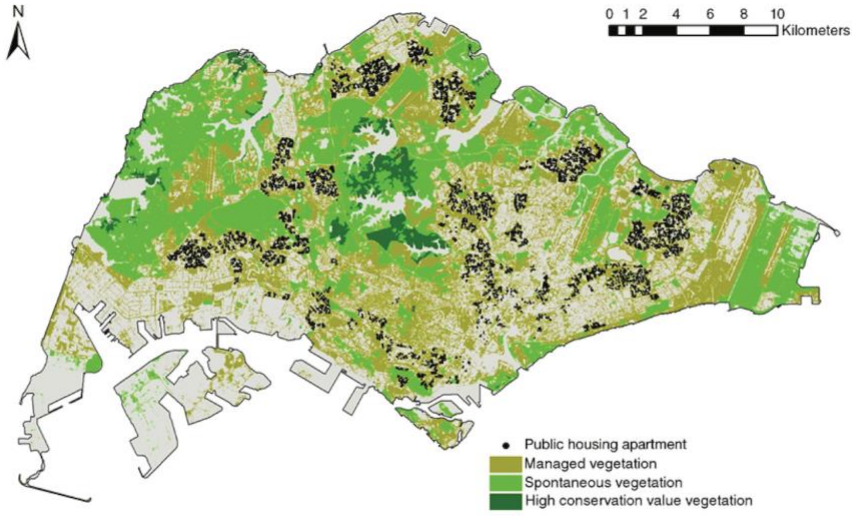


Illustration of the economic benefits of dense and green building typologies, through an example from a hedonic pricing study.

IV. Presentation in the exhibition

The six cases locates in Singapore are presented as a series of videos offering aerial views of these green buildings. They are interspersed with visual representation of the analysis, as well as interviews with architects and landscape architects involved in these projects to provide important insights to the inspiration, rationale, and design concepts behind these buildings.

The Interlace, Singapore, OMA / Buro Ole Scheeren / RSP

Khoo Teck Puat Hospital, Singapore, RMJM / CPG Consultants

Oasia Downtown, Singapore, WOHA

Punggol Waterway Terraces I, Singapore, G8A (formerly group8asia) / AEDAS

Skyville @ Dawson, Singapore, WOHA

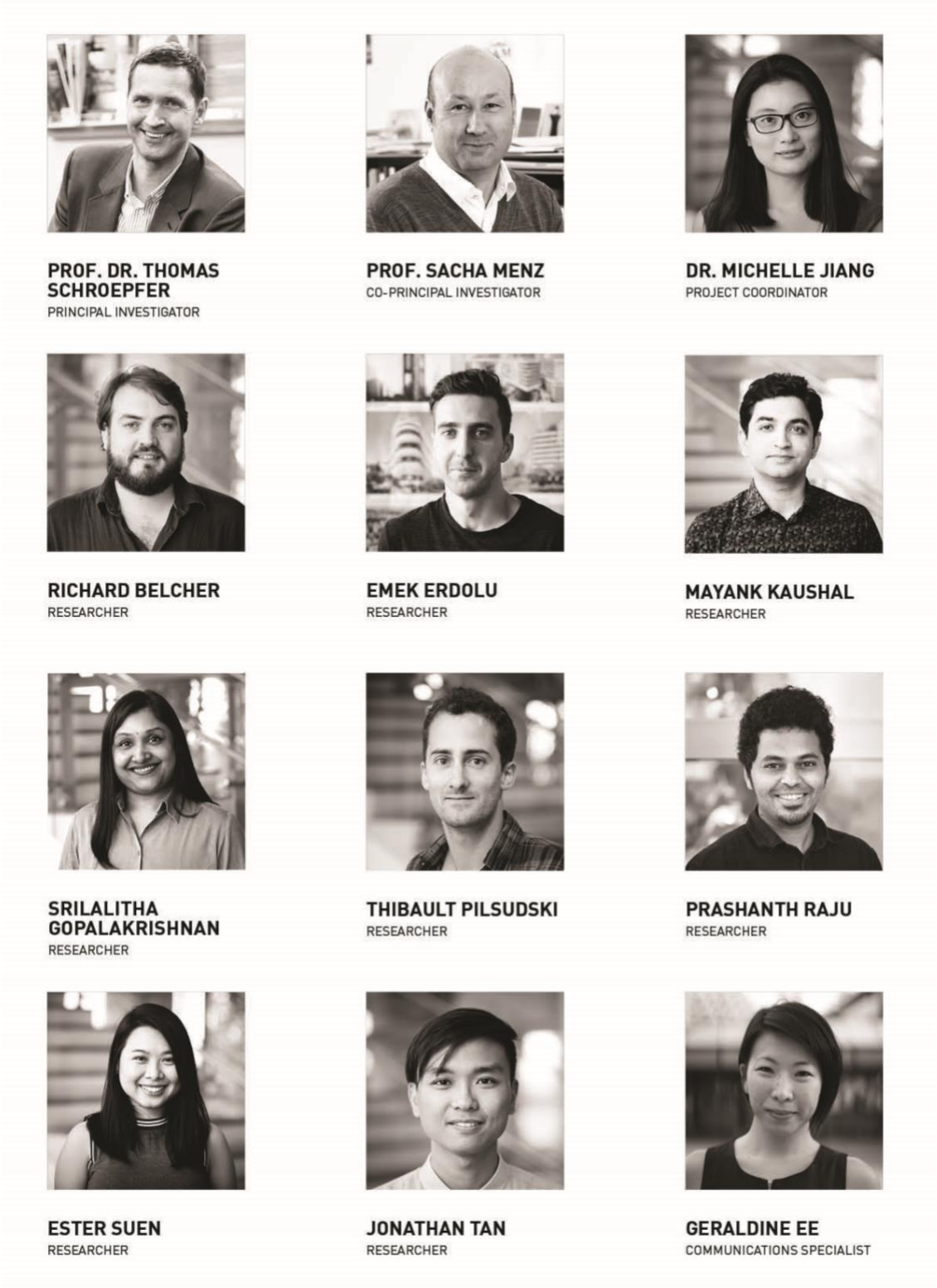
Solaris, Singapore, T. R. Hamzah and Yeang / CPG Consultants

Interviewees include:

i. Henry Steed, Director of ICN Design International
ii. Richard Hassell, Founding Director of WOHA
iii. Manuel Der Hagopian, Director of G8A Architecture and Urban Planning
iv. Tan Shao Yen, CEO of CPG Consultants




V. Research team



Collaborators for the exhibition:
SUTD Multi-Rotor Society, Singapore & Xtreme Media, Singapore

APPENDIX 2: IMAGES

Images in high resolution can be accessed here:
https://polybox.ethz.ch/index.php/s/xQaFHEGDbPzBD3e (password: FCL)

File name: The Interlace, Singapore
Caption: Still from the Video Installation of The Interlace, Singapore by OMA, Buro Ole Scheeren, RSP, ICN Design International, and CapitaLand Singapore
Image Credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team, SUTD Multi-Rotor Society, and Xtreme Media

Architect: OMA / Buro Ole Scheeren / RSP
Landscape Architect: OMA / ICN Design International
Developer: CapitaLand Singapore

File name: Khoo Teck Puat Hospital, Singapore
Caption: Still from the Video Installation of Khoo Teck Puat Hospital, Singapore by RMJM, CPG Consultants, Peridian Asia, Ministry of Health, and Alexandra Health
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team, SUTD Multi-Rotor Society, and Xtreme Media

Architect: RMJM / CPG Consultants
Landscape Architect: Peridian Asia
Developer: Ministry of Health / Alexandra Health

File name: Oasia Downtown, Singapore
Caption: Still from the Video Installation of Oasia Downtown, Singapore by WOHA, Tropical Environment, and Far East SOHO
Image credit: WOHA, K. Kopter, Xtreme Media, and Future Cities Laboratory - Dense and Green Building Typologies Research Team

Architect: WOHA
Landscape Architect: Tropical Environment
Developer: Far East SOHO

File name: Punggol Waterway Terraces I, Singapore
Caption: Still from the Video Installation of Punggol Waterway Terraces I, Singapore by G8A (formerly group8asia), AEDAS, ICN Design International, and Housing & Development Board, Singapore (HDB)
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team, SUTD Multi-Rotor Society, and Xtreme Media

Architect: G8A (formerly group8asia) / AEDAS
Landscape Architect: ICN Design International
Developer: Housing & Development Board, Singapore (HDB)

File name: Skyville @ Dawson, Singapore
Caption: Still from the Video Installation of Skyville @ Dawson, Singapore by WOHA, ICN Design International, and Housing & Development Board, Singapore (HDB)
Image credit: WOHA, K. Kopter, Xtreme Media, and Future Cities Laboratory - Dense and Green Building Typologies Research Team

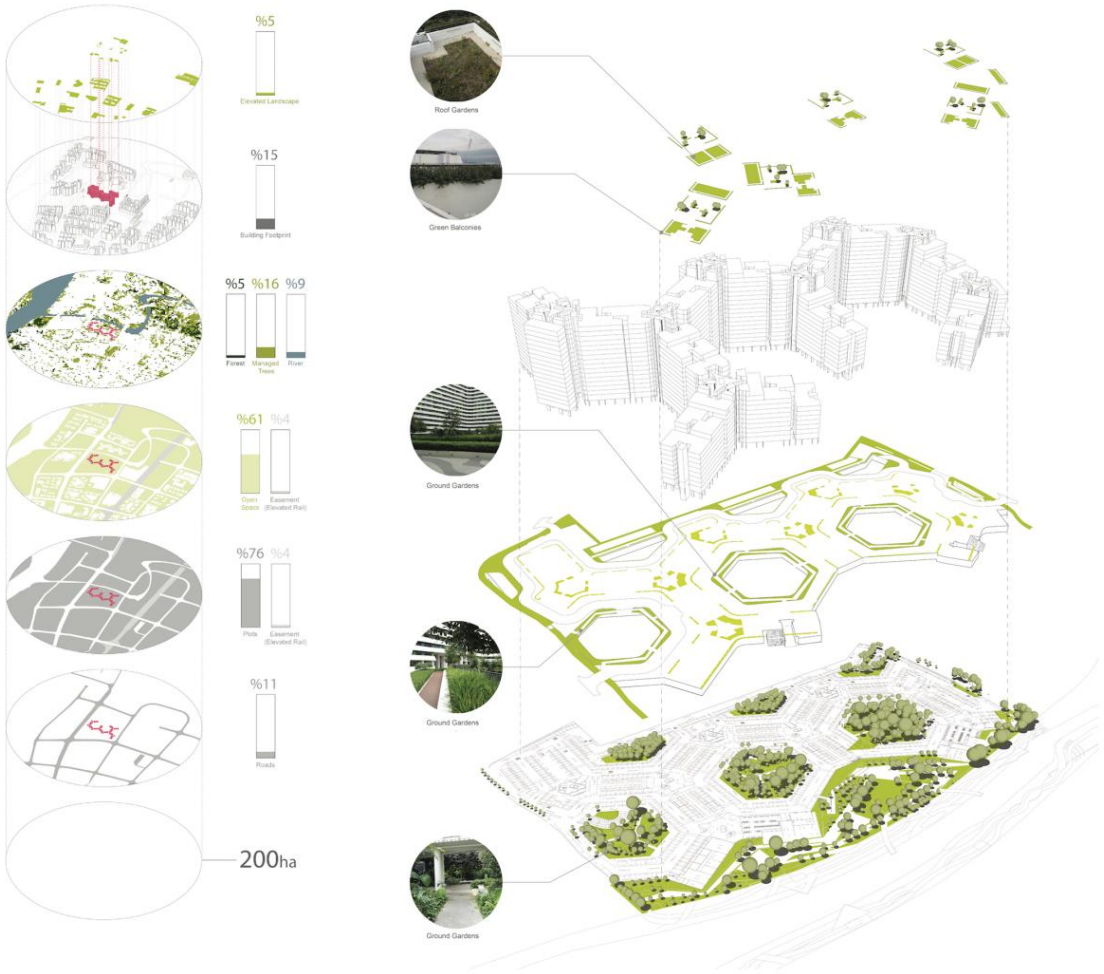
Architect: WOHA
Landscape Architect: ICN Design International
Developer: Housing & Development Board, Singapore (HDB)

File name: Solaris, Singapore
Caption: Still from the Video Installation of Solaris, Singapore by T. R. Hamzah and Yeang, CPG Consultants, Tropical Environment, and Soilbuild Group Holdings
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team, SUTD Multi-Rotor Society, and Xtreme Media

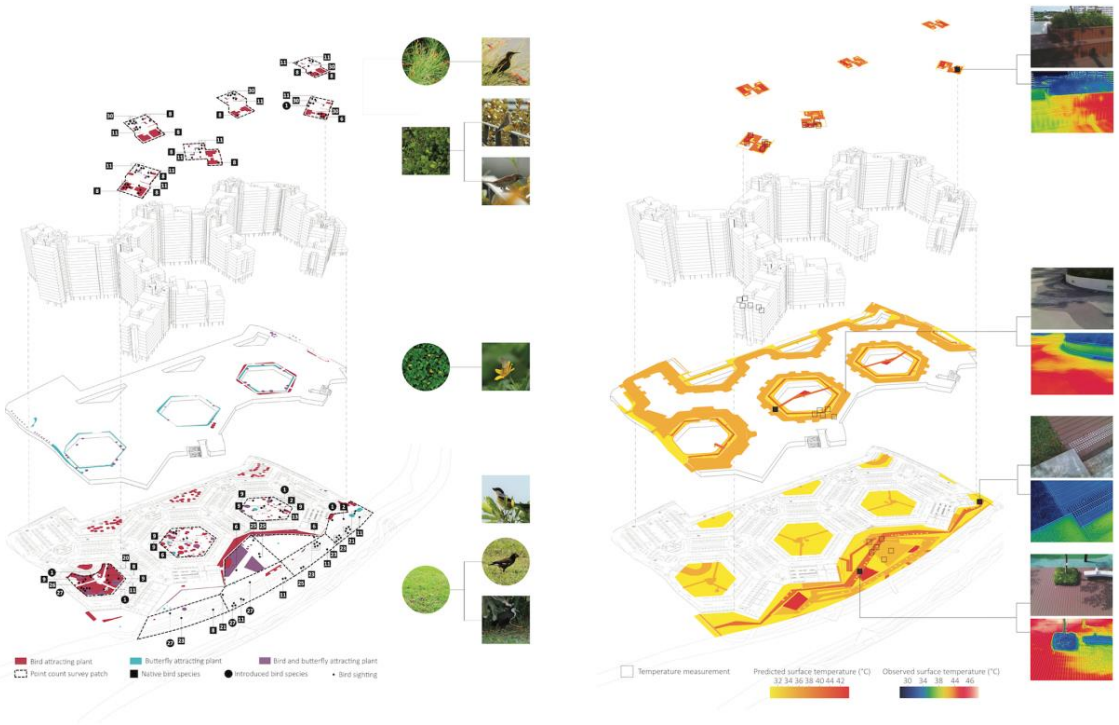
Architect: T. R. Hamzah and Yeang / CPG Consultants
Landscape Architect: Tropical Environment
Developer: Soilbuild Group Holdings

Image: Exhibition Set-up at Palazzo Mora
Caption: Exhibition Set-up at Palazzo Mora (First Floor, Room 5)
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team

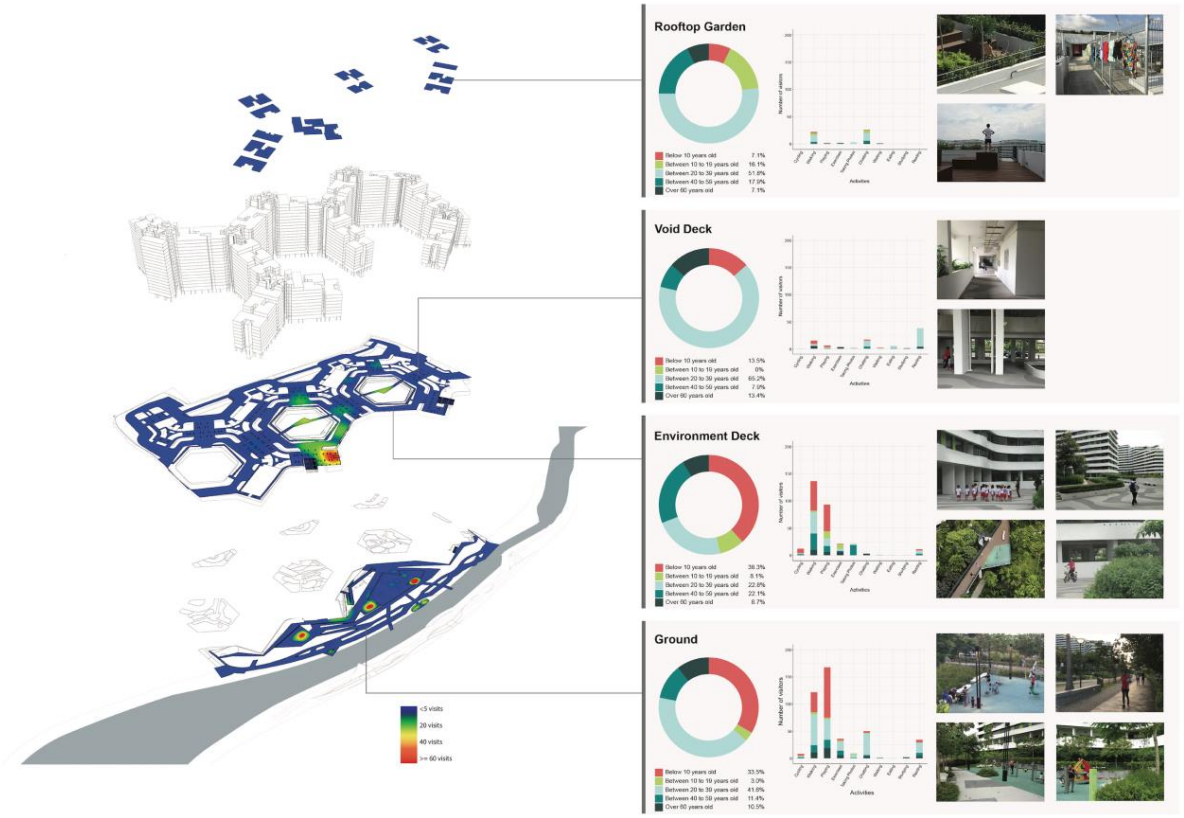
File Name: Buildings Featured
Caption: Buildings Featured
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team (building image credits within the visual)



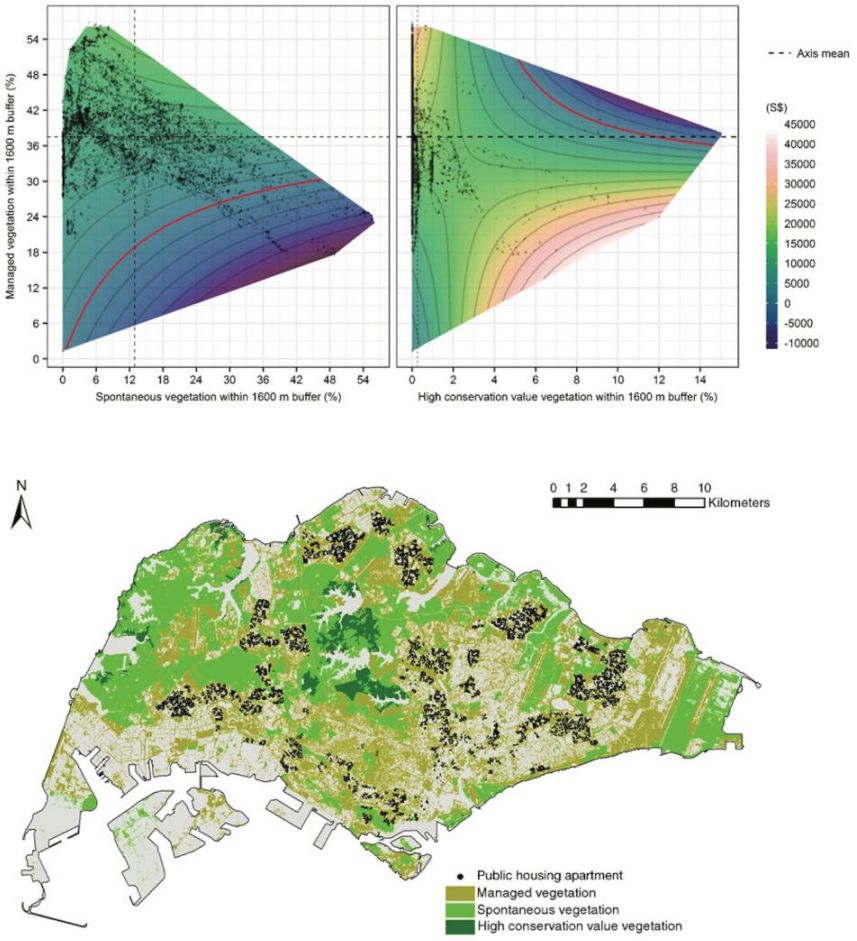
File Name: Urban and Architectural benefits
Caption: Illustration of the urban design and architectural features of Punggol Waterway Terraces I, including greenery provision, distribution, and integration.
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team



File Name: Environmental benefits
Caption: Illustration of the environmental benefits analysis of Punggol Waterway Terraces I, including biodiversity and surface temperature.
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team



File Name: Social benefits
Caption: Illustration of the social benefits of greenery at Punggol Waterway Terraces I, including heat map of space use and age group patterns.
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team



File Name: Economic benefits
Caption: Illustration of the economic benefits of dense and green building typologies, through an example from a hedonic pricing study.
Image credit: Future Cities Laboratory - Dense and Green Building Typologies Research Team