

Urban Sustainability

Ali Cheshmehzangi · Maycon Sedrez ·
Hang Zhao · Tian Li · Tim Heath ·
Ayotunde Dawodu *Editors*

Resilience vs Pandemics

Innovations in Public Places and
Buildings

 Springer

Urban Sustainability

Editor-in-Chief

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We collectively dedicate this book to our friends and family members who lost their lives or loved ones during the COVID-19 pandemic.

...only if thoughtful actions could have superseded thoughtless inactions!

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About This Book

We recall from our first volume that the COVID-19 pandemic and other highly transmissible disease outbreaks have given a new significance to the concept of ‘*resilience*’, placing it in the spotlight of built environment-related studies. This also includes studies at micro scales of public places and buildings. New directions have emerged from expanding on adaptive planning, urban layouts, urban morphologies, spatial planning, healthy cities, etc. To enhance resilience in the post-pandemic era, various theories, practices and hypotheses are being formulated by scholars around the world.

The second volume of this series delves into the theme of resilience in the post-pandemic era, with a specific focus on *public places and buildings*. In contrast to the first book, which explored the evolving concept of ‘*resilience*’ in the built environment, this volume narrows its scope to the research of the built environment at a smaller scale. This book aims to analyse and discuss the profound changes in architecture and urban design that have risen in response to pressing pandemic-related issues, such as social distancing, air renovation, social behaviour and other relevant topics.

Resilience vs Pandemics: Innovations in Public Places and Buildings explores innovative solutions for architecture and public places during and after the pandemic. Additionally, the authors contribute to the documentation of architectural and social transformations that have been prompted by previous transmissible diseases, as this knowledge can inform responses to future pandemics. In this volume, the chapters present critical, exploratory, multi- and interdisciplinary and cutting-edge research approaches; with a particular focus on the effects of COVID-19 and other highly transmissible diseases on the design, use, performance and perception of the built environment, particularly at the building scale. This volume aims to organize a collection of scientific studies, reviews, analysis, recommendations and solutions in the fields of urban design, architecture, design, landscape design, etc.

The overarching goal is to document new approaches to create and enhance built environment resilience. Chapters shed light on novel methods, tools, processes, regulations, behaviours and other relevant details contributing to a comprehensive

understanding of this crucial issue. The two scales of the built environment under consideration are:

- (1) Public Places, including research on transformations (death, emergencies, changes), requirements, adaptability, usability, virtual immersion, historical perspectives, interactivity, shifts in use and programmes, etc.
- (2) Buildings, including regulations, shifts in use and programme, non-pharmaceutical interventions, human interactions and human-machine interfaces.

The book covers a wide range of studies, including physical and non-physical studies, which may refer to the city infrastructure, green/blue spaces, housing, policy-making, health services, social and economic issues, etc. The findings and results of various global case study examples contribute to the decision-making of governments, organizations and institutions, as well as inspire scholars and future research for developing resilience in the post-pandemic era.

Target audience of the book is from diverse multi- and interdisciplinary backgrounds, including—but not limited to—scholars, institutions, practitioners and stakeholders performing research and plans in the fields of urban studies, architecture, urbanism, social sciences, computer sciences, history, politics, etc. The target audience recognizes the relevance of resilience in the built environment to achieve more sustainable cities.

Ali Cheshmehzangi
Maycon Sedrez
Hang Zhao
Tian Li
Tim Heath
Ayotunde Dawodu

Contents

1	Space and Resilience	1
	Ali Cheshmehzangi, Maycon Sedrez, Ayotunde Dawodu, Tim Heath, Hang Zhao, and Tian Li	
Part I Innovations in Public Places		
2	Rethinking the Design of Vertical Green Spaces in the Post-pandemic Era: Visitor Behaviour and Real-Life Cognitive Experience at Crossrail Place, London	13
	Ahmed Ehab and Tim Heath	
3	New Green Spaces for Urban Areas: A Resilient Opportunity for Urban Health	37
	Lorenzo Diana, Francesco Sommesse, Gigliola Ausiello, and Francesco Polverino	
4	How Breaks in Nature Can Affect the Users' Wellbeing: An Experience-Based Survey During the Lockdown (COVID-19): Strategies for Healthy and Resilient Green Areas in Our Cities	55
	Marco Gola, Monica Botta, Anna Lisa D'Aniello, and Stefano Capolongo	
5	Tactical Urbanism as an Innovative Urban Governance Tool: Lessons from the COVID-19 Pandemic	69
	Nina Alvandipour	
6	Urban Parks and Mental Health Recovery During the Pandemic: Insights from an Iranian Case Study	85
	Mehdi Nilipour and Ali Cheshmehzangi	

Part II Innovations in Buildings

7 How to Deal with Epidemic Disaster in Buildings: Introduction to the Epidemic Prevention Design Standard of Residential Building 101
Zengwen Bu, Jishou Zhong, Lei Yuan, Xiaoqiang Gong, Jian Liu, Xinglin Jiang, Xinhong Cheng, Wanheng Yang, and Meng Tian

8 Impact of High-Touch Surfaces on Potential Transmission of Diseases in Offices and Public Buildings 123
Kazbek Aitbekov, Egemen Avcu, Galym Tokazhanov, Aidana Tleuken, Mert Guney, and Ferhat Karaca

9 The Resilience Principles of the Built Environment in Light of Climate Change and the Post-pandemic Era 137
Osama Omar and Samer El Sayary

10 Towards Resilient Public Places and Buildings to Pandemics 153
Ali Cheshmehzangi, Maycon Sedrez, Ayotunde Dawodu, Tim Heath, Tian Li, and Hang Zhao

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About the Editors

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Maycon Sedrez is a Brazilian architect and urban designer, artist and educator with a background in computational design and digital fabrication. His research areas include complexity and architecture, parametric design, digital fabrication, technologies and urbanism. He obtained his Ph.D. Diploma with excellence in Architecture, Technology and City from the University of Campinas in 2016. He contributed to the Institute for Sustainable Urbanism (TU Braunschweig—Germany) as a Postdoc in the field of urban analytics. Later in 2019, he became part of the University of Nottingham Ningbo China's team, leading the Digital Design Lab, and acting as Course Director

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Hang Zhao is a Researcher in the fields of urban planning, design and management. She obtained a Master of Urban Design at the University of Melbourne in 2021. Her professional skills cover city and regional planning, transportation design, landscape architectural design, etc. Now, she is researching resilient cities and built environment at the University of Nottingham, Ningbo Campus, China.

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Tim Heath is a qualified architect, town planner and urban design practitioner having worked in the UK for over 30 years and for the past 15 years in China where he has undertaken consultancy and projects related to architecture, urban design and building and urban environmental performance assessments. He is the Course Director of the M.Arch. Sustainable Urban Design and the Director of Postgraduate Programmes. He has previously been the Director of the Institute of Architecture, Head of the School of the Built Environment and, subsequently, Head of the Department of Architecture and Built Environment. He has also been the Associate Dean for Internationalisation and External Relations in the Faculty of Engineering and Acting Vice-Provost for Research and Knowledge Exchange at the University of Nottingham, Ningbo Campus, China. He has also acted as an external examiner in many prestigious universities around the World for undergraduate and postgraduate programmes as well as being a Ph.D. examiner. He has chaired many academic and professional accreditation and validation panels in the UK, Malaysia, China and for the UAE's Commission for Academic Accreditation. He is also a member of the Human Factors Research Group.

Ayotunde Dawodu is a Sustainable Urban Researcher and Energy Engineer with a zeal for developing and implementing sustainable solutions across the urban fields: Waste Management, Transport, Energy (Efficient and Renewable), Spatial planning and Ecology sectors. He is equipped with a B.Sc. in Mechanical Engineering and M.Sc. in Sustainable Energy Engineering, Ph.D. Energy Technologies and Sustainable Development. He also possesses expertise in Sustainable Building Design/Analysis and strongly advocates integrated community participation in urban decision-making and planning. He also specializes in sustainability assessment tool

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Chapter 1

Space and Resilience



Ali Cheshmehzangi, Maycon Sedrez, Ayotunde Dawodu, Tim Heath,
Hang Zhao, and Tian Li

Abstract Despite the World Health Organization no longer classifying the COVID-19 pandemic as an ongoing public health emergency, its enduring impacts on people's lives remain significant. The importance of social distancing and minimizing physical contact has never been more emphasized in society, demanding new approaches to public places and architectural design in order to bolster resilience. Public places and buildings now routinely feature hand sanitizers at their entrances, floor markings to maintain distancing in waiting areas, and signage promoting various social behaviours that were not previously considered necessary. This chapter serves as an introduction to Volume 2 of the book, providing a concise overview of the research context, objectives, and the book's structure. It also introduces the potential role that architecture and urban scholars can play in responding to pandemic conditions. The overarching goal of the book is to deepen our understanding of essential routines, behaviours, and spatial transformations necessary to develop innovative and resilient solutions within the built environment.

Keywords Resilience · Pandemics/epidemics · Innovation · Public places · Architecture · Sustainability

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