

# PROMETHEUS

06

## Editors

Piyush Khairnar *College of Architecture, IIT*  
Alexis Arias Betancourt *College of Architecture, IIT*

## PhD Journal Faculty Advisory Committee

Edoarda Corradi Dell'Acqua *Armour College of Engineering, IIT*  
Nicole Ditchman *Lewis College of Human Sciences, IIT*  
Peng Du *College of Architecture and Built Environment,  
Thomas Jefferson University*  
Kevin Harrington *Lewis College of Human Sciences, IIT*  
Mohammad Heidarinejad *Armour College of Engineering, IIT*  
Ron Henderson *College of Architecture, IIT*  
Michelangelo Sabatino *College of Architecture, IIT*  
Ullica Segerstråle *Lewis College of Human Sciences, IIT*  
Brent Stephens *Armour College of Engineering, IIT*  
Maria Villalobos Hernandez *College of Architecture, IIT*

## Symposium Scientific Committee

Kheir Al-Kodmany *College of Urban Planning & Public  
Affairs, University of Illinois Chicago*  
Thomas E. Brock *College of Architecture, IIT*  
Edoarda Corradi Dell'Acqua *Armour College of Engineering, IIT*  
Peng Du *College of Architecture & Built Environment,  
Thomas Jefferson University*  
Mahjoub Elnimeiri *College of Architecture, IIT*  
Paul Endres *College of Architecture, IIT*  
Martin Felsen *College of Architecture, IIT*  
Maria Paz Gutierrez *College of Environmental Design,  
University of California Berkeley*  
Mohammad Heidarinejad *Armour College of Engineering, IIT*  
Ron Henderson *College of Architecture, IIT*  
Hyesun Jeong *College of Design, Art, Architecture, and  
Planning, University of Cincinnati*  
Barbara Kenda *School of Architecture and Design,  
Virginia Tech*  
Indraneel Kumar *Purdue Center for Regional Development*  
Luke Leung *Skidmore Owings & Merrill*  
Nadia Mounajjed *College of Engineering, Abu Dhabi University*  
Hazem Rashed-Ali *Huckabee College of Architecture,  
Texas Tech University*  
Michelangelo Sabatino *College of Architecture, IIT*  
Antony Wood *College of Architecture, IIT*

## Symposium Steering Committee

Amjad Alkoud *College of Architecture, IIT*  
Alexis Arias Betancourt *College of Architecture, IIT*  
Piyush Khairnar *College of Architecture, IIT*  
Alejandro Saldaña Perales *College of Architecture, IIT*  
Michelangelo Sabatino *College of Architecture, IIT*

ISSN 2688-0776  
IIT Architecture Chicago

Copyright © 2023 IIT Architecture Chicago  
All rights reserved.

Front Cover Image: Aerial view of Chicago skyline during  
the day. Photo courtesy of Ben Sp.

Opening Image: Aerial view of the Illinois Institute of  
Technology campus and Chicago skyline. Photo courtesy  
of Michael Goss. Copyright © Illinois Institute of Technology

Back Cover Image: Stylized version of Prometheus by  
Paul Manship (1934), Rockefeller Center, New York.

Disclaimer: The authors have endeavored to identify and  
credit image sources and copyright holders.

Printed by The Graphic Arts Studio  
Designed by Span, Bud Rodecker, Alyssa Arnesen

IIT Architecture Chicago  
S. R. Crown Hall  
3360 S. State St.  
Chicago, IL 60616

# PROMETHEUS

Journal of the PhD Program in Architecture

Issue 06 — 2023

Regenerative Cities: Infrastructure, Landscape, Buildings, and Technologies

Edited by

Piyush Khairnar and Alexis Arias Betancourt

# CONTENTS

- 08 Dean's Introduction**  
Reed Kroloff *Illinois Institute of Technology*
- 09 Director's Introduction: Why Prometheus?**  
Michelangelo Sabatino *Illinois Institute of Technology*
- 12 Editors' Introduction**  
Piyush Khairnar and Alexis Arias Betancourt  
*Illinois Institute of Technology*
- 14 Symposium Overview**  
*Regenerative Cities: Infrastructure, Landscape, Buildings, and Technologies: November 18–19, 2022*
- 16 Part I.A — Regenerative City: A Chicago Story**
- 18 Opening Keynote: Regenerative Cities — The Heart & Soul of Restoration of Urban Life**  
Maurice D. Cox *City of Chicago*
- 22 Day Two Keynote: Architects, Artists, and the Making of Cities — The Skyscraper and Urban Identity in the 1920s**  
Dr. Gail Fenske *Roger Williams University*
- 28 Part I.B — Panel Discussion: Regenerative Cities: Current Challenges and Opportunities**  
Peng Du *Thomas Jefferson University*  
Vedran Mimica *Illinois Institute of Technology*  
Jordi Barri *Barri Studios, Barcelona*  
María Villalobos *Illinois Institute of Technology*  
Ron Henderson *Illinois Institute of Technology*
- 36 Part I.C — Regenerative Cities: Infrastructure and Landscape**
- 38 Sustainable Regionalism in Architecture: A Framework of Principles and Components**  
Elahe Zoghi Hosseini *Islamic Azad University of Mashhad*  
Mahsa Hashemi *Pennsylvania State University*  
Saeed Hajikazemi *Tarbiat Modares University*
- 44 Changing Dynamics of the Inner Core City of Varanasi: The Relationship Between Water and Morphology of the Urban Settlement**  
Ritu G. Deshmukh *Thomas Jefferson University*
- 50 Driverless City: The Urban Possibilities of Autonomous Vehicles and Navigation Safety**  
Alexis Arias Betancourt, Kana Nagai, and Yihe Chen  
*Illinois Institute of Technology*
- 56 Green Infrastructure in the Public Realm: Reimagining Stormwater and the Urban Fabric of Falls Church, Virginia**  
Michelle Mary Dsouza *Virginia Tech*
- 62 Lafayette Park & The Canopysphere: Natural Landscape as Urban Design Framework for Public Spaces in Large-Scale Private Developments**  
Alejandro Saldaña Perales *Illinois Institute of Technology*
- 68 General, Mental, and Physical Health Benefits of Tree Canopy Cover and Recreational Park in 77 Communities of Chicago, U.S.**  
Liwen Kang *Illinois Institute of Technology*
- 72 Regenerate Cities Through Unfolded Theory: Holistic Approach to Urban Landscape**  
Diana Almeida and Henrique Fabiao *Lusíada University of North-Oporto*

**78 Part I.D — Regenerative Cities: Buildings and Technologies**

- 80 Reconditioning Dharavi: A Toolkit of Strategies for Incremental Development  
Saylee Bhogle *Illinois Institute of Technology*
- 86 Reimagining an American City Where People Without a House Can Subsist  
Mohammad Sabbir Hussain *Virginia Tech*
- 94 Cities on the Move: Envisioning Cityscape in the Autonomous Vehicle Era  
Hyoeeun Lee *Illinois Institute of Technology*
- 100 Regenerative Approach Through Circular Design: Potential of Bio-Based Carbon Fiber Composites in Structural Systems of Tall Buildings  
Piyush Khairnar *Illinois Institute of Technology*
- 108 Street Smart and School Catchments: A Walkability Analysis of Chicago Public Schools  
Henry Heligas *Illinois Institute of Technology*
- 110 Investigating the Impact of Building Ordinances and Zoning Codes on the Future of Major Cities: Supertall Buildings; Chicago and Dubai  
Amjad Alkoud *Illinois Institute of Technology*

**112 Part II — PhD Program Overview 2021–23**

Curated by Alejandro Saldaña Perales  
*Illinois Institute of Technology*

- 114 PhD Program Overview 2021–23
- 116 Academic Programming Highlights
- 124 Housing Blocs Symposium Highlights
- 126 Annual Symposium Highlights
- 132 Student Life and Research
- 142 PhD Defended Dissertation Abstracts
- 150 Accomplishments
- 158 Part III — INTERVIEWS**
- 160 Interviews with PhD Program Alumni
- 166 Interviews with Experts
- 184 In Memoriam
- 190 Biographies: CoA Dean, PhD Director, Editors, and Curator